

Hydrogeologic Investigation

**Former G&S Community
Corner Site
6100 ISLETA BLVD., SW**

**ALBUQUERQUE,
BERNALILLO
COUNTY, NM**

May 3, 2001



Prepared For:

**Bernalillo County Environmental
Health Department
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May 3, 2001

Mr. Nolan Bennett
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Sent via e-mail: nbennett@berncogov and US Mail

RE: Transmittal of Hydrogeologic Investigation Report
6100 Isleta Blvd. SW, The G&S Community Corner Site
NMED/USTB Facility ID No. 28207
Contract Control No. 980473

Dear Nolan:

Please find included herewith one copy of the Hydrogeologic Investigation Report for the G&S Community Corner site. Recommendations for further action include preparation of a Tier 2 evaluation to determine if any additional remedial efforts are necessary at the site, and continued quarterly ground water monitoring.

Please do not hesitate to contact the undersigned if you have any questions or comments regarding this matter.

Respectfully submitted,
FAITH ENGINEERING, INC.

Stuart E. Faith, PE, CS #80
President

cc. w/ encls. Mr. Tom Leck – NMED/USTB
Mr. Bill Brown - TPA

**HYDROGEOLOGIC
INVESTIGATION REPORT**

**FORMER G&S COMMUNITY
CORNER SITE**

**6100 ISLETA BLVD. ,SW
ALBUQUERQUE, NEW MEXICO**

FAITH ENGINEERING, INC.

**TECUMSEH PROFESSIONAL
ASSOCIATES, INC.**

MAY 3, 2001

Submitted to:

Mr. Nolan Bennett
Environmental Health Scientist
Bernalillo County Environmental
Health Department

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1.0 EXECUTIVE SUMMARY

On behalf of the Bernalillo County Environmental Health Department (BCEHD), Faith Engineering, Inc. (FEI) and Tecumseh Professional Associates, Inc. (TPA) performed a Hydrogeologic Investigation (HI) at the Former G&S Community Corner Site (the Site) located at 6100 Isleta Blvd., SW in Bernalillo County, New Mexico (Figure 1). The HI was performed to evaluate the magnitude and extent of hydrocarbon releases originally discovered in 1988 when gasoline vapors were detected in an adjacent US West manhole. The Site was the location of a series of gasoline service stations operating from the 1950's through 1989 when the remaining USTs were removed from the Site.

Between 1989 and 1994, Site investigations were performed on behalf of the responsible party by Mariah and Associates, Inc. (Mariah) and Carson Geologic Services, Inc. (Carson). These early investigations revealed the presence of soil and groundwater gasoline contamination centered in the northern portion of the Site. During the Carson investigation, 15 private water supply wells were reported within 500 feet of the Site.

In early 1992, the NMED placed the Site on its list of state-lead Groundwater Protection Act (GWPA) sites. Groundwater Technology, Inc. (GTI) was retained by NMED to complete investigation activities and design, install, and operate a remediation system. Between 1992 and 1994, GTI installed and sampled additional monitor wells in the Site vicinity at the locations shown on Figure 2. Total petroleum hydrocarbons (TPH) levels in soils were measured in localized zones at concentrations as high as 31,000 ppm. However, the majority of the samples collected from the Site were less than 1,000 ppm TPH.

In 1995, GTI designed and installed an in-situ high vacuum extraction (HVE) reclamation system at the Site consisting of six extraction wells manifolded via underground piping to a liquid-ring vacuum pump, liquid-phase GAC treatment canisters, an oil-water separator, and a catalytic oxidizer (Figure 3). Treated vapors were discharged to the atmosphere; treated groundwater was re-injected to non-impacted groundwater via an infiltration gallery located to the southeast of the on-site building. The system reportedly operated between August 1995 and April 1996 and removed an estimated 760 lbs/120 gallons of hydrocarbons via physical extraction. The amount of hydrocarbons recovered from the Site during this period is not well documented and is based predominantly on PID readings. During the final quarter of system operation, GTI calculated the system physically removed only 28 pounds of hydrocarbons. Reductions in groundwater benzene, toluene, ethyl-benzene, and total xylenes (BTEX) levels were documented in monitor wells during and subsequent to this period.

The objective of FEI/TPA's HI was to better characterize the current subsurface hydrogeologic regime and the vertical and horizontal extent of remaining soil and groundwater impacts following remedial efforts. The HI included four primary tasks: 1) review of NMED files, site mapping and photography, and review of historic soil and groundwater data. 2) re-sampling and analysis of groundwater from previously installed monitor wells, 3) advancement and sampling of new soil borings, monitor, and pilot wells; and 4) completion of this summary HI Report.

Initial FEI/TPA groundwater sampling for the 1st quarter of monitoring took place on September 19 and 20, 2000. TPA drilling activities for this HI took place at the Site between February 2, 2001 and February 21, 2001. A total of 16 boreholes were advanced in the Site vicinity. Five were completed as 2-inch diameter monitor wells, 5 as 4-inch diameter monitor/vacuum extraction (VE) wells and 2 as multiple completion pilot test wells. The remaining 4 boreholes were plugged and abandoned with bentonite-cement grout and native material to the land surface (Figure 2). Groundwater sampling of the newly installed wells took place on March 22, 2001.

Retrieved samples collected from boreholes indicate sediments between the ground surface and approximately 17 feet below surface grade (bsg) can be subdivided into 4 primary laterally extensive Lithologic Units (Figures 4 and 5). Lithologic Unit I extends from the ground surface to approximately 4-6 feet bsg and is comprised primarily of silty sands with lesser amounts of clayey silty sands and sand. Lithologic Unit II extends from the base of Lithologic Unit I to approximately 6 to 8 feet bsg and is composed primarily of silt with localized clayey or sandy silts. Lithologic Unit III extends from the base of Lithologic Unit II to approximately 7 to 10 feet bsg and is composed primarily of well-sorted silty fine grained sands with lesser amounts of clayey silty very fine sands. For the purposes of contaminant migration and Site remediation, Lithologic Unit III is probably the most important unit at the Site (Figure 5). Shallow groundwater is first encountered in this interval and contaminant migration has occurred primarily through Lithologic Unit III. Lithologic Unit IV extends to below 17 feet deep and is composed primarily of very low permeability dense clay with localized silty or thin sandy intervals.

During the Investigation, groundwater saturated conditions were encountered at a depth of approximately 7-8 feet bsg. Evaluation of groundwater level measurements indicated the potentiometric surface sloped to the south at a gradient of approximately 0.007 feet/foot on September 19, 2001 (Figure 6). Previous measurements during the early to mid-1990's suggested groundwater flowed generally towards the west or southwest.

Two sets of USTs were formerly located on the Site; one in the north and one in the south (Figure 2). Gasoline hydrocarbon impacts to soils in the immediate vicinity of the Site were

found in an area extending primarily south and west of the former northern USTs (Figures 5 and 7). TPH_{gasoline range} levels in retrieved soil samples were measured at concentrations of up to 740 ppm and total ionizable volatile compounds (TIVC) headspace concentrations of up to 3366 parts per million/volume (ppm/v). TPH_{gasoline range} levels exceeding 100 ppm extend across an area approximately 40 feet by 80 feet across. TIVC levels exceeding 100 ppm/v extend across an area approximately 130 feet by 210 feet in size. Based on analysis of laboratory data, reductions in TPH levels were observed at the Site versus those measured prior to remedial efforts and six years of natural biodegradation/dispersion processes. Analyses of laboratory chromatograms also indicate remaining hydrocarbons in soils at the Site are weathered in nature, with much of the BTEX compounds having been removed. Hydrocarbon saturated or "highly contaminated" soils were not identified at the Site during this investigation (Figures 4 and 5; see Borehole Logs, Appendix A)

Pre-remedial groundwater impacts at the Site were characterized by moderate to high levels of dissolved-phase BTEX, 1,2 dichloroethane (EDC), and methyl tertiary butyl ether (MTBE) extending offsite to the south and west. Groundwater sample data from the two most recent sampling events indicate non-detect to low levels of BTEX, EDC, and MTBE in the majority of monitor wells (Figure 8). Maximum benzene and total BTEX concentrations were measured at 130 and 2268 parts per billion (ppb), respectively, in samples collected from well FTW-2.

Inorganic groundwater quality samples collected from monitor wells indicate moderate levels of bicarbonate as the primary inorganic groundwater constituent at the Site. Phosphate, iron, sulfate and nitrate concentrations were identified at low levels or below method detection limits. Groundwater samples exhibited a slightly basic pH.

An estimated 1,500 cubic yards of hydrocarbon contaminated soil (including vapor-phase hydrocarbons) is present with approximately 5,000 cubic yards of non-impacted overburden. Residual TPH spill mass estimates suggest that only approximately 620 pounds (lbs.)/100 gallons of TPH_{gasoline} is still present in the immediate Site vicinity. Based on the estimated amount of hydrocarbons removed from the Site by the GTI reclamation system, it is likely that original pre-remediation TPH mass in soil was less than approximately 2,000 lbs/320 gallons.

The vertical and horizontal extent of soil and groundwater hydrocarbons exceeding WQCC and USTR standards has been defined. Based on existing data, FEI/TPA recommend completion of a Tier Two RBDM evaluation at the Site and implementation of a long-term groundwater monitoring plan to document plume stability. Should more aggressive remedial steps be necessary, we recommend either upgrade and operation of the existing remedial system for an additional quarter or excavation and disposal of the adsorbed-phase hydrocarbon soil

contaminant core located in the vicinity of wells FTW-1 and PT -1.

2.0 INTRODUCTION

2.1 BACKGROUND/SITE HISTORY

2.1.1 Overview

The G&S Site is located at 6100 Isleta Blvd., SW in Bernalillo County, New Mexico, and is highlighted in the site base map shown in Figure 2. Surrounding properties include a Bernalillo County Senior's Center and a vacant lot to the north, residential housing to the west and southwest, and vacant lots to the south and east. The Site has been the location of a series of service stations dispensing gasoline from the 1950's through 1989 when the remaining USTs were removed from the Site. Reportedly two sets of USTs were located at the Site (Figure 2). The more recently operated tanks were located in the southwestern portion of the Site. Based on available site data (presented below) these tanks did not experience major hydrocarbon releases. They were removed from the ground in 1989. The older USTs were located in the northern portion of the Site and appear to have experienced significant hydrocarbon releases. The northern tanks were reportedly removed from the ground in 1984.

The Site was first investigated in 1989 and 1990 when the responsible party retained Mariah and Carson to perform investigative services. Three wells were installed at the Site (MW-1, MW-2, and MW-3) which revealed the presence of soil and groundwater gasoline contamination centered in the northern portion of the Site. During the Carson investigation, 15 private water supply wells were reported within 500 feet of the Site (Figure 2). The majority of these wells are apparently shallow and less than 100 feet deep. Several other unregistered abandoned wells were also reported in the immediate Site vicinity.

In early 1992, the NMED placed the Site on its list of state-lead GWPA sites. GTI was retained by NMED to complete investigation activities and design and install a remediation system. Between 1992 and 1994, GTI installed and sampled additional monitor wells and soil borings in the Site vicinity. These drilling locations are presented on Figure 2. Soil TPH_{gasoline} levels were measured at one location, MW-9, at concentrations as high as 31,000 ppm. However, the majority of samples analyzed were below 1,000 ppm TPH_{gasoline}.

GTI designed and installed an in-situ high vacuum extraction (HVE) reclamation system at the Site in 1995. The reclamation system consisted of six 2" diameter schedule 40 PVC wells manifolded via underground 3" diameter schedule 40 PVC piping to a liquid-ring vacuum pump, liquid-phase GAC treatment canisters, an oil-water separator, and a 250 scfm catalytic oxidizer

(Figure 3). Treated vapors were discharged to the atmosphere; treated groundwater was re-injected to groundwater via an infiltration gallery located to the southeast of the on-site building. The system operated between August 1995 and April 1996. Initially, failure to anticipate high levels of hydrocarbon vapors resulted in destruction of the catalyst on the oxidizer. Reportedly, modification of the system and well operating configurations prevented this occurrence during the remaining operational period.

Hydrocarbon recovery from the Site during the period of operation is not well documented and is based predominantly on PID readings. GTI estimated approximately 760 lbs/120 gallons of hydrocarbons was physically removed from the Site along with an unknown amount via stimulated subsurface biodegradation. During the final quarter of system operation, GTI calculated the system physically removed only 28 lbs/5 gallons of hydrocarbons.

2.2 SCOPE OF WORK

FEI/TPA's initial scope of work for the project consisted of four primary tasks:

- ❑ Review NMED/USTB files, site mapping, photography, and review of historic groundwater and soil data.
- ❑ Assess current Site conditions, sample existing monitor wells and conduct three additional quarters of sampling.
- ❑ Advance and sample soil borings, monitor, and pilot test wells in the Site vicinity to identify the magnitude and extent of soil and groundwater hydrocarbon impacts, better evaluate site hydrogeology, and allow for possible later HVE pilot testing.
- ❑ Analyze collected data and prepare and submit a Hydrogeologic Investigation (HI) Report pursuant to the USTR Part XII, Section 1212.

3.0 PHYSICAL SETTING

3.1 PHYSIOGRAPHY

The G&S Site is approximately 0.5 acres in size, and is located at an average elevation of approximately 4,912 feet above mean sea level. Regional topography slopes south-southeast toward the Rio Grande, which is located approximately 2500 feet to the east of the Site (Figure 1).

3.2 GEOLOGIC SETTING

3.2.1 Regional Geology

The Site rests on Quaternary fluvial sediments deposited by the nearby Rio Grande. Underlying the Site are poorly to moderately consolidated sedimentary rocks of the Tertiary Santa Fe Group (Kelly, 1977). During this investigation, only the uppermost Quaternary fluvial unit was encountered.

3.2.2 Site Geology

During the Investigation, a total of 16 boreholes were advanced in the Site vicinity to depths of between 9 and 17 feet bsg at the locations shown in Figure 2. Site geology as observed in retrieved split-spoon samples and soil cuttings can be subdivided into four primary lithologic units based on grain size and areal extent. Although facies changes were observed during drilling activities, each of these primary stratigraphic units was found to be laterally persistent across the Site. To better illustrate site geology, TPA constructed the simplified geologic cross section shown in Figure 4 for the location A-A' shown on Figure 2. Borehole lithologic logs are presented in Appendix A.

Lithologic Unit I extends from the ground surface to approximately 4-6 feet bsg and is comprised primarily of silty sands, clayey silty sands and sand which have been locally reworked by excavation/construction activities. Lithologic Unit II extends from the base of Lithologic Unit I to approximately 6 to 8 feet bsg and is composed primarily of silt with localized clayey or sandy silts. Lithologic Unit III extends from the base of Lithologic Unit II to approximately 7 to 10 feet bsg and is composed primarily of well-sorted silty fine grained sands with lesser amounts of clayey silty very fine sands. For the purposes of contaminant pathway migration and Site remediation, Lithologic Unit III is probably the most important unit at the Site (Figure 5). Shallow groundwater is first encountered in this interval and contaminant migration has occurred primarily through Lithologic Unit III at the Site. Lithologic Unit IV was identified in all boreholes

advanced at the Site and is composed primarily of very low permeability dense clay with localized silty or thin sandy intervals. This unit extended from the base of Lithologic Unit III to below 17 feet deep in the borehole locations sampled by TPA/FEI. GTI identified a lower sand-rich unit at the borehole MW-9 drilling location at depths below 16 feet bsg, which may or may not be extensive across the Site.

3.3 HYDROGEOLOGIC SETTING

Groundwater was encountered in the Site vicinity at a depth of approximately 7-8 feet. Groundwater is typically encountered at or slightly below the contact between Lithologic Units II and III (Figures 4 and 5) and appears unconfined in nature. Based on groundwater sampling efforts at the Site, the thickness of Lithologic Unit III, and observed grain size, the shallow aquifer is of low yield. Newly installed FEI/TPA wells recharged at a moderate rate during sampling. The new wells were screened across the water table using standard well construction techniques and either standard high-flow or wire-wrapped high-flow well screen.

Groundwater level measurements in Site vicinity monitor wells are summarized in Table 1. Analysis of groundwater level data collected on September 19 and 20, 2000 suggests the groundwater potentiometric surface slopes to the south-southwest at a gradient of approximately 0.007 feet/foot (Figure 6). This calculated flow direction is almost a 60° shift from former west-southwest estimates in groundwater flow by GTI (1992-1995). Similar changes in groundwater flow direction over time were also measured at nearby UST Sites (FEI/TPA, 2001).

4.0 FIELD AND LABORATORY SAMPLING METHODS AND PROCEDURES

4.1 GENERAL

This section describes the methods and procedures for the following project activities:

- ❑ Soil Boring, Monitor Well, and Pilot Test Well Installation
- ❑ Subsurface Soil Sampling and Analysis
- ❑ Groundwater Sampling and Analysis

As per the requirements of CFR 1910.120, FEI/TPA prepared a site specific Health and Safety Plan prior to initiation of field activities at the Site. A copy of the Health and Safety Plan is presented in Appendix C.

4.2 SOIL BORING AND MONITOR WELL INSTALLATION

Sixteen boreholes were advanced in the Site vicinity between February 2, 2001 and February 21, 2001 using a CME-75 hollow-stem auger (HSA) drill rig supplied and operated by Rodgers Drilling, Inc. or a short-masted HSA rig operated by Nevex Drilling, Inc. Following advancement, all soil borings not completed as monitor wells were abandoned by backfilling with bentonite-cement grout and native fill or concrete at the land surface. Borehole lithologic logs and monitor well completion diagrams are located in Appendix A.

A total of 16 boreholes were advanced in the Site vicinity. Five were completed as 2-inch diameter monitor wells; five others were completed as 4-inch diameter HVE/monitor wells; and 2 as multiple completion pilot test wells. The remaining 4 boreholes were plugged and abandoned with bentonite pellets, bentonite cement grout, and clean drill cuttings to the land surface (Figure 2; Appendix A).

The 2-inch and 4-inch diameter PVC vacuum extraction/monitor wells were set with 10 feet of schedule 40, 0.01 slot high-flow wire-wrapped screen. An 8-12 or a 10-20 silica sandpack was emplaced from the base of the bore hole to approximately one to two feet above the top of the well screen followed by approximately 2 feet of bentonite pellets hydrated to form a seal. Bentonite-cement grout was emplaced from the top of the seal to just below the land surface followed by a standard 8-inch or 12-inch manway and concrete apron. Either a 2-inch or 4-inch PVC slip cap was installed over the top of each PVC well casing to complete the installation.

Each multiple completion pilot test well was completed with two separate well screens, (one deep and one shallow) consisting of 3-foot long, 1-inch diameter, schedule 80, standard 0.01 slot screen and associated PVC blank. A combination 8-12/10-20 silica sandpack was emplaced at the base of the borehole to approximately 6-inches above the deep well screen followed by approximately 1 foot of bentonite pellets hydrated to create an intermediate seal. A second silica sandpack was emplaced at the top of the intermediate bentonite seal to approximately 1-foot above the shallow well screen followed by approximately 6 to 12-inches of hydrated bentonite pellets creating a second seal. Bentonite-cement grout was emplaced from the top of the second seal to just below the land surface followed by a standard 12-inch manway and concrete apron. A 1-inch PVC slip cap was installed over the top of each well casing completing the installation.

Remaining boreholes not completed as monitor wells were abandoned with bentonite cement grout and native fill to the land surface.

Sediment samples were collected from each borehole and logged on a continuous basis using three-inch diameter, 5-foot long split-spoon core barrels or 2-foot long drive split spoons. Samplers were decontaminated between sample runs using an alconox solution followed by a tap water wash. All soil samples were described by a TPA Geologist or Engineer using the Unified Soil Classification System (USCS) logging methodology. Drill cuttings and rig activity were also observed to identify lithologic contacts. Drill cuttings have been temporarily stored on-site on visquene plastic awaiting proper disposal.

4.3 SOIL SAMPLING AND ANALYSIS

During drilling activities, retrieved sediment samples were collected from boreholes for field headspace analysis using a PID. Total ionizable volatile compounds (TIVC) were measured using a RAE-2000 Model PID utilizing a 10.6 eV lamp. 100 parts per million/volume (ppm/v) isobutylene span gas and ambient air were used to calibrate the PID prior to use.

Results of the field headspace and laboratory soil analyses are presented in Table 2 and Figures 5 and 7, and on the borehole logs presented in Appendix A. At each drilling location, discrete sediment samples were also collected using the USTR Methanol Extraction Method. These samples were kept on ice and hand delivered to Pinnacle Laboratory, Inc. (Pinnacle) located in Albuquerque, New Mexico for laboratory analyses. Laboratory soil samples were analyzed for the following parameters:

- ❑ Total Petroleum Hydrocarbons (C₅-C₁₄ carbon range) (TPH_{gasoline range}) using EPA Method 8015 (modified) (GC-FID)

- ❑ Volatile Organic Compounds (VOCs) including BTEX, EDC, EDB, and MTBE using EPA Method 8260 (GC-MS)
- ❑ Lead using EPA Method 6010/6020 (TCLP) – [Select samples]

During the Investigation, all soil samples were handled using strict Chain-of-Custody procedures. Laboratory reports including quality assurance/quality control data (QA/QC) and chain-of-custody documentation are presented in Appendix B.

4.4 GROUNDWATER SAMPLING AND ANALYSIS

Two separate groundwater sampling events were conducted in the Site Vicinity as part of the HI. On September 19 and 20, 2000 groundwater samples were collected for the 1st Quarterly Report from twelve of the previously installed monitor wells for laboratory analysis. In addition, the Baros private water supply well was also sampled (Figure 2). On March 22, 2001, following completion of HI drilling, groundwater samples were collected from the ten newly installed monitor/VE wells. Groundwater laboratory analytical results are presented in Table 3, Figure 8, and Appendix B.

During each of the two sampling events, the water level in each well was measured and also gauged for the presence of LNAPL. Temperature, pH and conductivity measurements were taken during well purging to document well stabilization. In order to purge and develop the monitor wells, between three to five well volumes were removed prior to collection of groundwater samples using a downhole submersible pump. The pump was decontaminated between wells with an Alconox solution followed by a distilled water rinse. Groundwater samples were collected and stored in appropriate containers using the appropriate preservatives. A blind duplicate was collected from one of the monitor wells for QA/QC purposes during one of the sampling events. In addition, an equipment rinsate blank was collected during the first sampling event. It should be noted that trace levels of toluene, total xylenes, tri-methyl benzenes, and naphthalene were identified in the equipment blank sample. Steps will be taken by FEI//TPA during the next sampling event to prevent this occurrence in the future. Samples were collected using strict chain-of-custody procedures, stored on ice in a cooler, and hand-delivered to Pinnacle. Purge water was discharged to an on-site paved surface to allow volatilization of any VOCs as per NMED guidance documentation.

Laboratory groundwater samples were analyzed for the following parameters:

- ❑ Volatile Organic Compounds (VOCs) including BTEX, EDC, EDB, tri-methyl benzenes (TMBs) and MTBE using EPA Method 8260 (GC-MS)
- ❑ Electron receptors (SO_4 , NO_3 , Carbonates, and Fe_2) using CHEMets Colorimetric Test Kits

5.0 RESULTS OF THE INVESTIGATION

5.1 HYDROCARBON DISTRIBUTION IN SOIL

Table 2 presents a summary of laboratory analytical results for soil samples collected during subsurface drilling operations at the Site. In addition, the magnitude and extent of soil TIVC and TPH in cross-sectional view and in plan view are presented in Figures 5 and 7. Based on drilling data, soil hydrocarbons in the Site vicinity exceeding TPH and/or TIVC levels extend off site to the north, west, and southwest.

The TIVC soil headspace plume is approximately 130 by 210 feet across. A much smaller adsorbed-phase TPH core of soil contamination is present in the immediate vicinity of the former northern USTs, which is approximately 40 by 80 feet in size. In general, soil contaminants appear restricted to a thin zone at and below the current water table (Figure 5) with the exception of the immediate vicinity of the former USTs. Laboratory chromatographic analyses indicate soil hydrocarbons are consistent with weathered gasoline. Maximum TPH gasoline, total BTEX, and TMBs concentrations documented at the Site were 740ppm, 62.1 ppm, and 49 ppm, respectively.

Hydrocarbon saturated “highly contaminated” soils were not identified in any of the borings advanced in the Site vicinity. TIVC levels exceeded 100 ppm/v in 10 of the 16 boreholes advanced in the Site vicinity and 1,000 ppm/v in 9 of the 16 boreholes advanced in the Site vicinity.

Examination of soil laboratory data from borehole samples indicates weathering of lighter end hydrocarbon compounds. With the exception of sample collected from borehole FTW-1 (62.1), total BTEX levels were below the NMED soil standard of 50 ppm. Trace to low levels of toluene, ethyl benzene, total xylenes, TMBs and naphthalenes are still present.

5.2 HYDROCARBON DISTRIBUTION IN GROUNDWATER

Groundwater sampling data and chromatographic analysis suggest that remedial activities and natural biodegradation have successfully removed the majority of the lighter end BTEX components from the Site. Based on the last two sampling events, six wells (MW-4, FTW-1, FTW-2, HV-1, HV-2, and VM-4) had one or more of the following constituents above NMWQCC and NMED/USTB standards; benzene, total xylenes, EDC, and naphthalenes. Table 3 and Figure 8 present a summary of detailed information on the distribution of hydrocarbon contaminants and groundwater quality at the Site. Please refer to the 1st Quarterly Monitoring Report, dated 11/15/00, for laboratory reports and chains of custody for the September 19 and

20, 2000 sampling events.

Maximum BTEX and naphthalene groundwater concentrations were measured in samples collected from monitor well FTW-2 at 130, 45, 650, 1960, and 180 ppb, respectively. Maximum EDC groundwater concentrations were measured at 26 ppb in HV-2. EDB was not identified in groundwater samples at concentrations exceeding laboratory method detection limits (MDLs). BTEX concentrations appear to have decreased significantly over the 12-year period of groundwater monitoring at the Site. Prior to operation of the remedial system, initial benzene concentrations were measured in wells at levels up to 7,000 ppb.

Accumulations of light-non-aqueous phase liquids (LNAPLs) were not observed in monitor wells installed in the Site vicinity during the September 2000 and March 2001 sampling events. Prior sampling events, including TPA/FEI's initial site inspection in June of 1999, identified LNAPLs in monitor well MW-4.

Inorganic water quality analyses of groundwater samples collected from pre-existing and newly installed wells are presented in Table 3. Bicarbonate is the primary inorganic groundwater constituent identified at the Site with concentrations ranging between 250 to 600 ppm. Phosphate, iron, sulfate and nitrate concentrations were identified at low levels or below MDLs. Groundwater is slightly basic in chemistry with pH typically ranging between 6.90 to 8.00.

5.3 RESIDUAL SPILL MASS ESTIMATES

An estimated 1,500 cubic yards of hydrocarbon contaminated soil (including vapor-phase hydrocarbons) is present with approximately 5,000 cubic yards of non-impacted overburden. Residual TPH spill mass estimates suggest that only approximately 620 pounds (lbs.)/100 gallons of TPH_{gasoline} is still present in the immediate Site vicinity. Based on the estimated amount of hydrocarbons removed from the Site by the GTI reclamation system, it is likely that original pre-remediation TPH mass in soil was less than approximately 2,000 lbs/320 gallons. Calculations are presented in Appendix D, which includes Figure A, Residual Hydrocarbon Spill Mass Estimate Map.

6.0 CONCLUSIONS

Based on the data collected during the Hydrogeologic Investigation, the following conclusions are presented:

- ❑ Site geology as observed in retrieved soil samples can be subdivided into four primary laterally extensive lithologic units (Figure 4) which appear to have been fluvially deposited. Lithologic Unit I is composed primarily of silty fine grained sands. Lithologic Unit II is composed primarily of silt. Lithologic Unit III is similar to Lithologic Unit I but much thinner in nature, and Lithologic Unit IV is composed of low permeability clays with minor lenses of silt and sand.
- ❑ Primary hydrocarbon releases at the Site appear to have been from the northern USTs (Figures 7 and 8).
- ❑ During the Investigation, groundwater was first encountered at depths of between 7 and 8 feet bsg. Groundwater flow in the shallow aquifer was calculated to be primarily to the south at a hydraulic gradient of approximately 0.007 feet/foot.
- ❑ Hydrocarbon soil contamination consists of a thin vapor-phase halo extending across an area approximately 130 by 210 feet across which surrounds a much smaller TPH adsorbed-phase core in the immediate vicinity of the old USTs and fuel dispensers (Figure 7). Soil contaminants are primarily restricted to a thin zone along the water table in Lithologic Unit III. Field and laboratory sample data suggest Lithologic Unit IV has acted as a barrier to vertical contaminant migration at the Site.
- ❑ Analysis of laboratory chromatograms and carbon range breakdowns indicate the gasoline hydrocarbons identified at the Site are consistent with weathered gasoline. Prior remediation activities and natural biodegradation and dispersion processes appear to have preferentially removed the lighter end TPH compounds (i.e. benzene) from soils and groundwater at the Site. It is likely that operation of the former high vacuum extraction (HVE) system essentially “de-watered” the thin Lithologic Unit III groundwater zone allowing removal of portions of the soil and groundwater hydrocarbons (Figure 5).
- ❑ Residual TPH spill mass estimates suggest that only approximately 620 pounds (lbs.)/100 gallons of TPH_{gasoline} is still present in the immediate Site vicinity. Based on the estimated amount of hydrocarbons removed from the Site by the GTI reclamation system, it is likely that original pre-remediation TPH mass in soil was less than approximately 2,000 lbs/320 gallons.

7.0 RECOMMENDATIONS

Based on the information collected during this investigation and the requirements of the USTR Part XII, FEI/TPA recommends the following actions at the Site:

- ❑ Conduct a Tier Two RBCA evaluation to determine if any additional remedial efforts are necessary at the Site.
- ❑ Continue quarterly groundwater monitoring at the Site to document plume stability and protect human health and the environment.

Should the above efforts indicate a more pro-active strategy is necessary at the Site we recommend the following options be evaluated:

- ❑ Upgrade and operate the existing remedial system for an additional one to two quarters, or;
- ❑ Excavate and dispose of the adsorbed-phase hydrocarbon soil contaminant core (~200 cubic yards with an additional ~1,000 cubic yards of overburden) located in the vicinity of wells FTW-1 and PT -1.

8.0 REFERENCES

- Carson Geologic Services, Inc. (1990) Report Describing On-Site Investigation of Probable Underground Storage Tank Petroleum Release, 6100 Isleta Boulevard, SW, Bernalillo County, New Mexico.
- Groundwater Technology, Inc. (1994) Comprehensive Hydrogeologic Investigation and May 1994 Quarterly Groundwater Monitoring Report – G&S Community Corner, 6100 Isleta Boulevard, SW, Albuquerque, New Mexico.
- Groundwater Technology, Inc. (1992) Hydrogeologic Investigation – G&S Community Corner, 6100 Isleta Boulevard, SW, Albuquerque, New Mexico.
- Kelly, T.E., (1977) Geology of the Albuquerque Basin, New Mexico; New Mexico Bureau of Mines and Minerals Resources, Memoir 33.
- Mariah Associates, Inc. (1989) Report on Monitor Well Installation and Ground-Water Sampling, G&S Community Corner, Bernalillo County, New Mexico.

9.0 STATEMENT OF FAMILIARITY

We are personally familiar with the information presented in this report and it is accurate and complete to the best of our knowledge.

Faith Engineering, Inc.

Stuart E. Faith, PE
President
NMCS#80


Tecumseh Professional Associates, Inc.

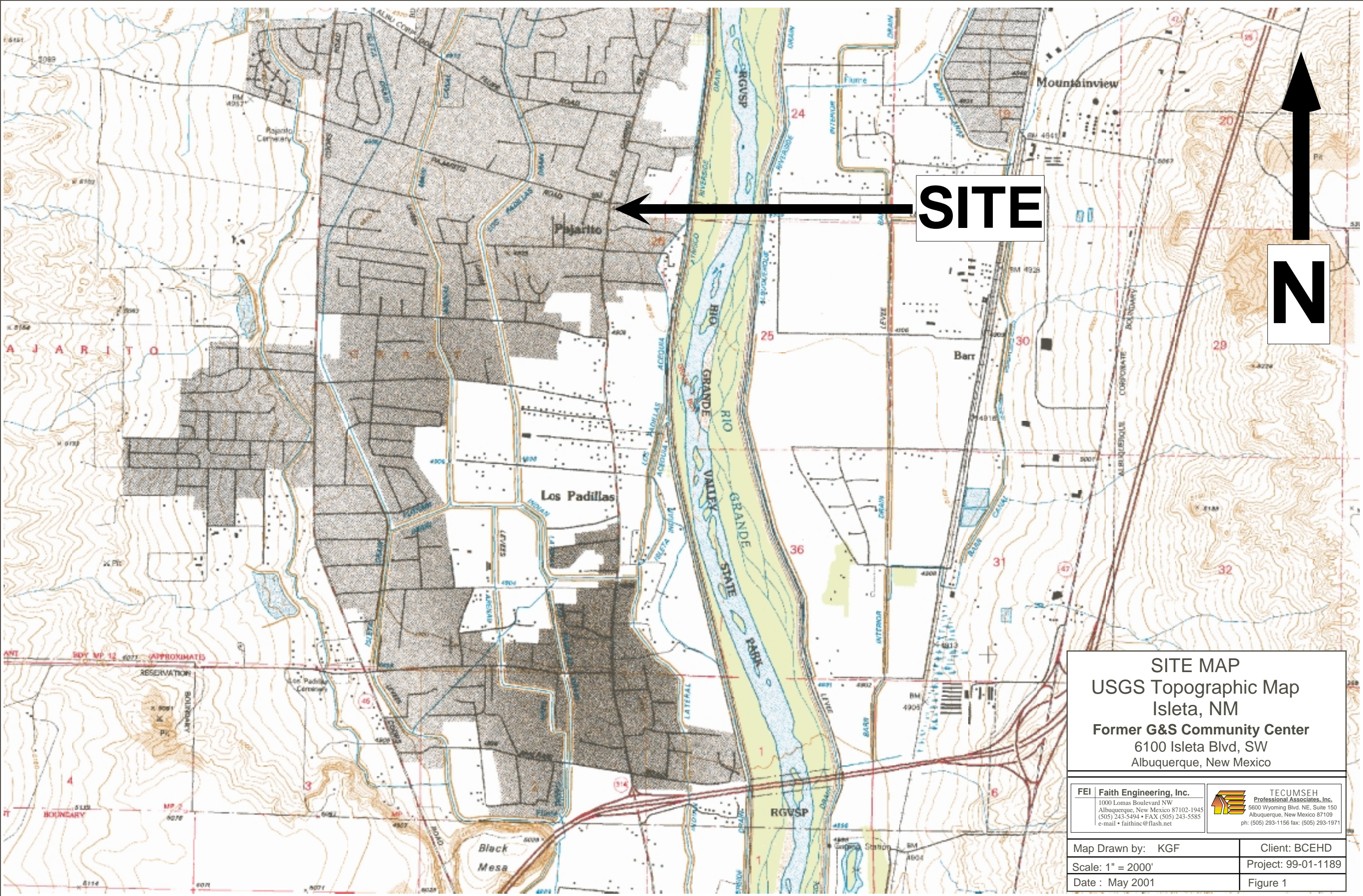
William J. Brown, PG
Senior Hydrogeologist
NMCS#77

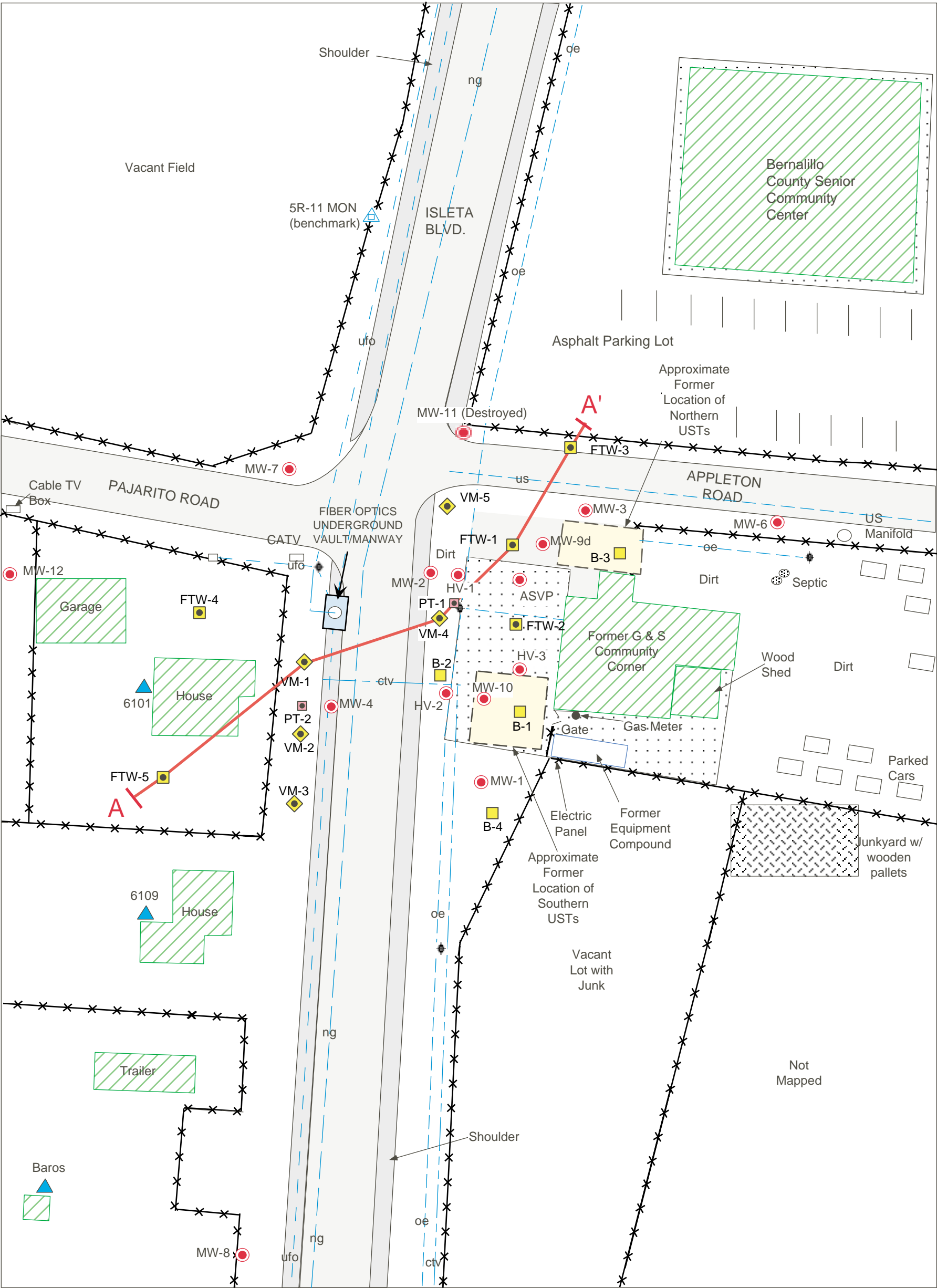
SITE



SITE MAP
USGS Topographic Map
Isleta, NM
Former G&S Community Center
6100 Isleta Blvd, SW
Albuquerque, New Mexico

<p>FEI Faith Engineering, Inc. 1000 Lomas Boulevard NW Albuquerque, New Mexico 87102-1945 (505) 243-5494 • FAX (505) 243-5585 e-mail • faithinc@flash.net</p>	<p> TECUMSEH Professional Associates, Inc. 5600 Wyoming Blvd. NE, Suite 150 Albuquerque, New Mexico 87109 ph: (505) 293-1156 fax: (505) 293-1971</p>
Map Drawn by: KGF	Client: BCEHD
Scale: 1" = 2000'	Project: 99-01-1189
Date : May 2001	Figure 1



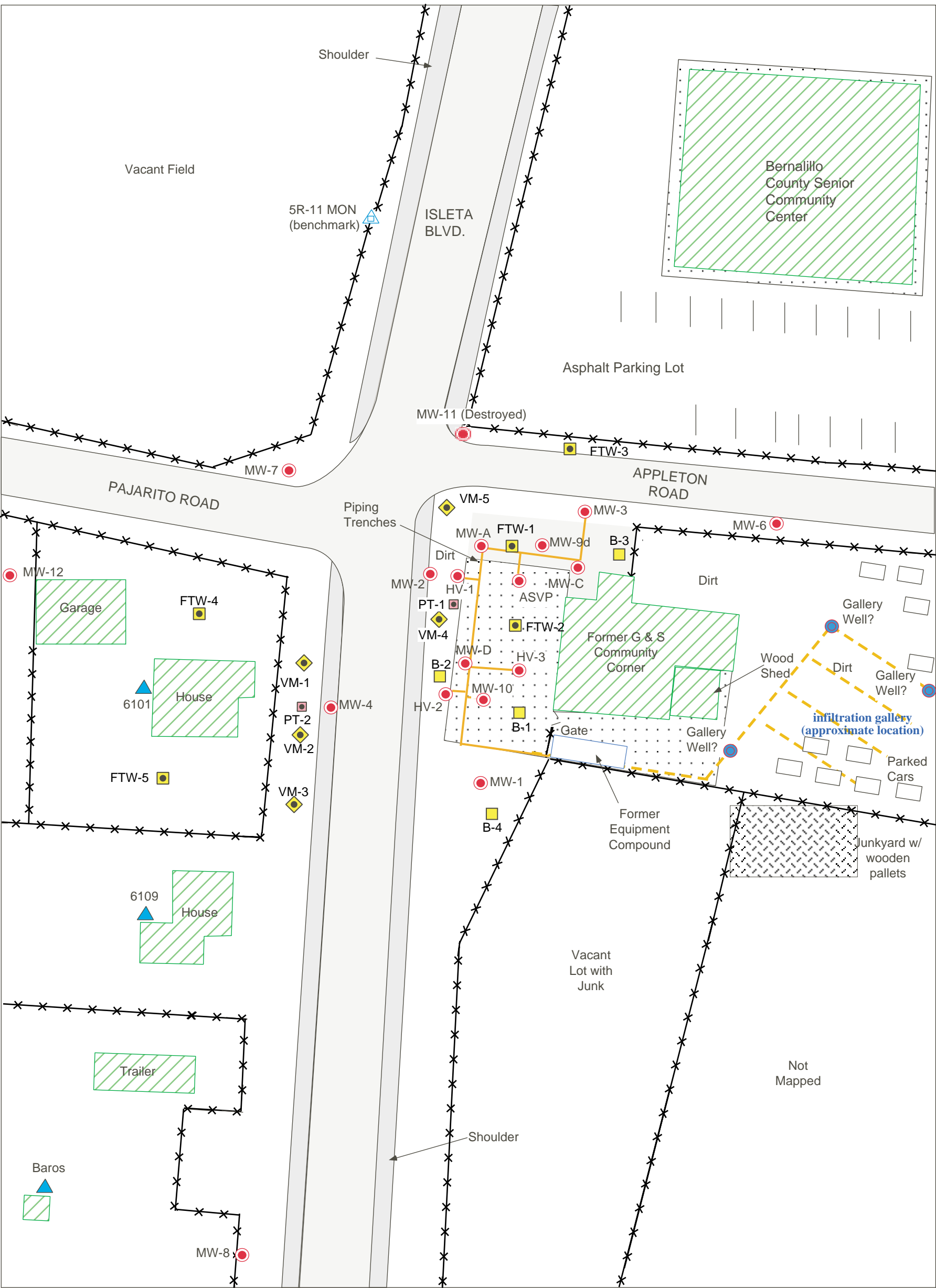


EXPLANATION:

- New 4" Diameter VE/Monitor Well
 - New 2" Diameter Monitor Well
 - New Soil Boring
 - New Multiple Completion Pilot Test Well
 - Existing Monitor Well Location
 - Private Water Supply Well
 - Building
 - Concrete
 - Fence Line
- B** **B'** Location Of Cross Section
- 0 20 40 ft
Scale

Former G & S Community Center
6100 Isleta SW, Albuquerque, New Mexico

Client: BCEHD
Base Drawn by: KGF/WJB/ABL Project: 99-00-1189



EXPLANATION:

- New 4" Diameter VE/Monitor Well
 - New 2" Diameter Monitor Well
 - New Soil Boring
 - New Multiple Completion Pilot Test Well
 - Existing Monitor Well Location
 - Private Water Supply Well
 - Building
 - Concrete
 - Fence Line
 - Underground HVE piping
 - Underground Injection piping
- 0 20 40 ft
Scale

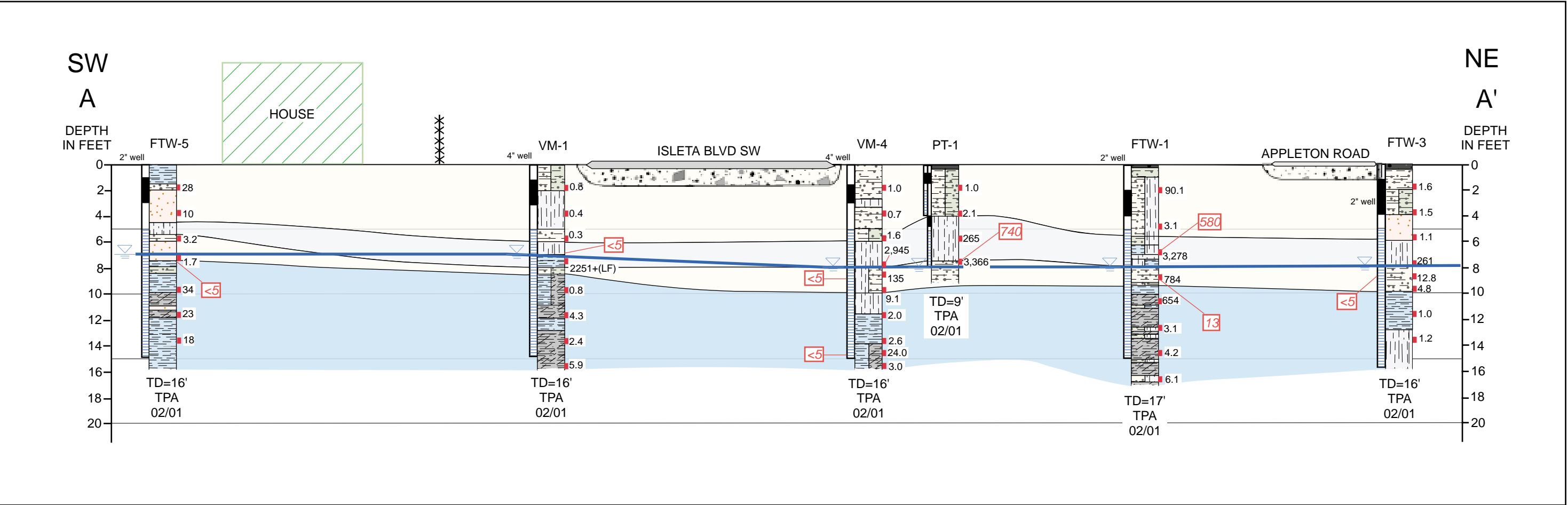
SITE BASE MAP
HIGHLIGHTING PREVIOUSLY
INSTALLED HVE
REMEDATION SYSTEM

Former G & S Community Center
6100 Isleta SW, Albuquerque, New Mexico

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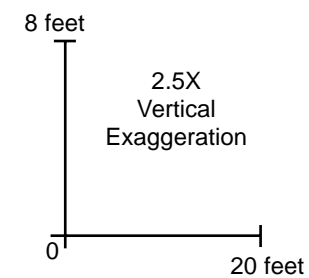
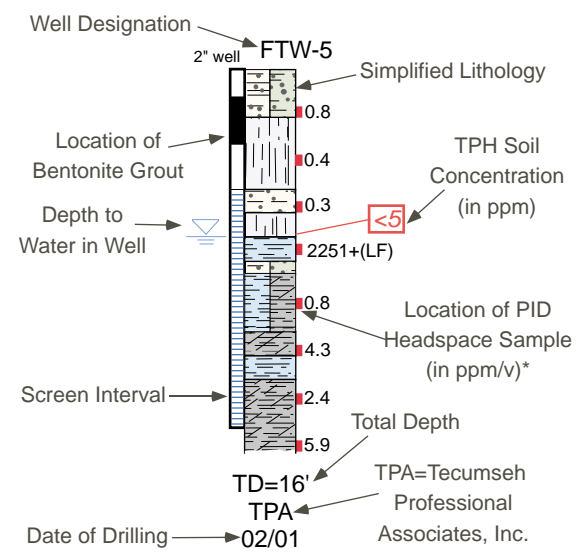
Map Drawn by: WJB	Client: BCEHD
Base Drawn by: KGF/WJB/ABL	Project: 99-00-1189
Date : April 2001	Figure: 3



EXPLANATION

Simplified Lithology	
SW	Gravelly or Poorly Sorted Sand
SP	Well Sorted Sand
SM	Clayey-Silty Sand
SC	Clayey Sand
ML	Silt
CL	Clay and Silty Clay
CH	Fat Clay
	Fill
	Road

Well Completion Summary



* Note: All drilling locations were continuously sampled

** This cross section represents an interpretation of subsurface geologic conditions based upon available data; some variations may be expected

SIMPLIFIED GEOLOGIC CROSS SECTION A-A'

G & S - ISLETA
6100 Isleta Blvd, SW
Albuquerque, New Mexico

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Map Drawn by: WJB

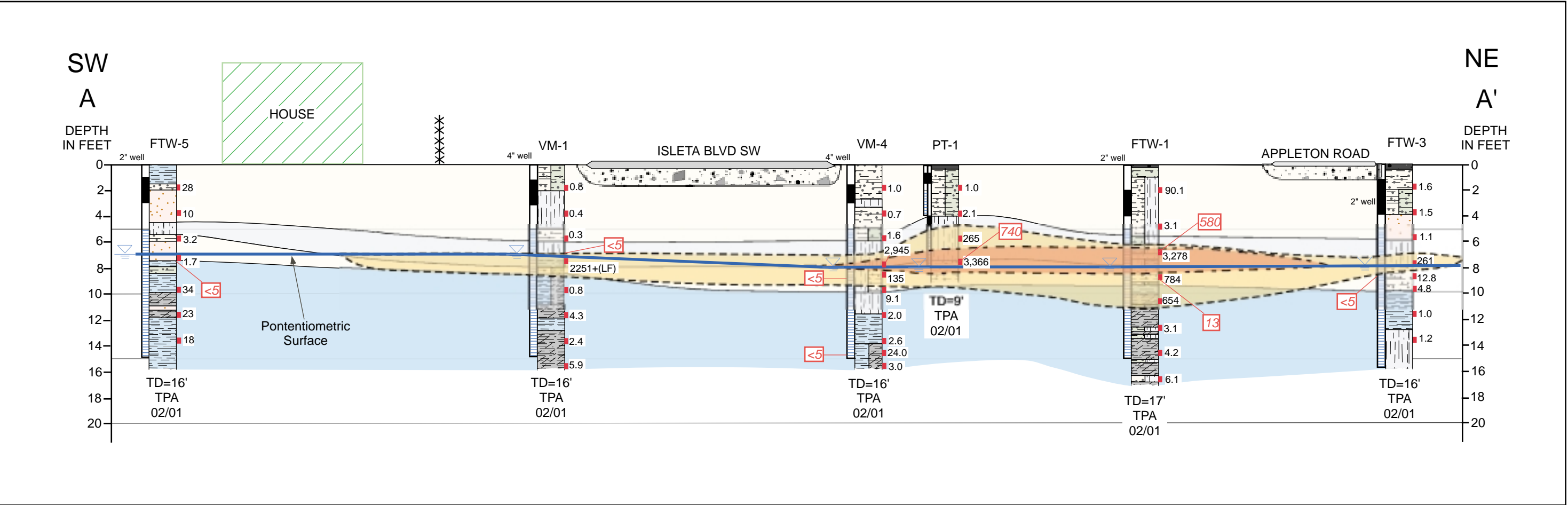
Client: BCEHD

Base Drafted by: OG

Project: 99-00-1189

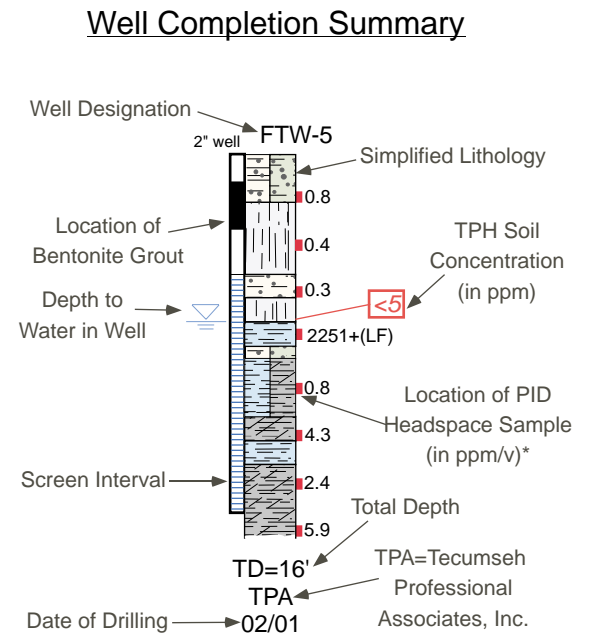
Date: April 2001

Figure 4



EXPLANATION

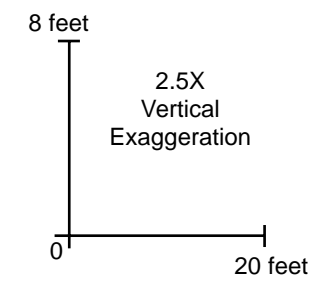
- Simplified Lithology**
- SW Gravelly or Poorly Sorted Sand
 - SP Well Sorted Sand
 - SM Clayey-Silty Sand
 - SC Clayey Sand
 - ML Silt
 - CL Clay and Silty Clay
 - CH Fat Clay
 - Fill
 - Road



- Hydrocarbon Contours**
- Soils impacted with total ionizable volatile compounds (TIVC) >100 ppm/v
 - Soils impacted with total petroleum hydrocarbons (TPH) >100 ppm

* Note: All drilling locations were continuously sampled

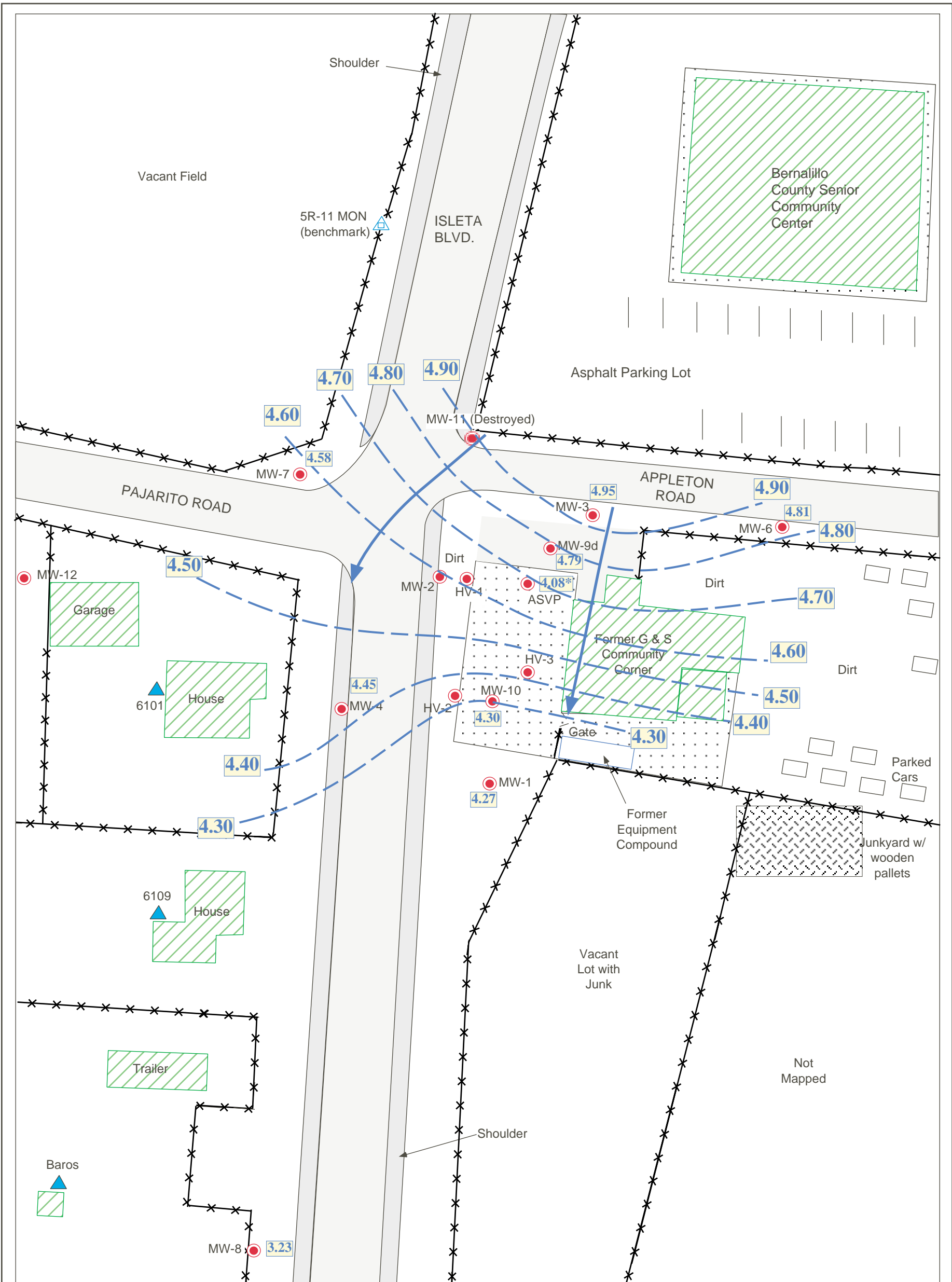
** This cross section represents an interpretation of subsurface geologic conditions based upon available data; some variations may be expected



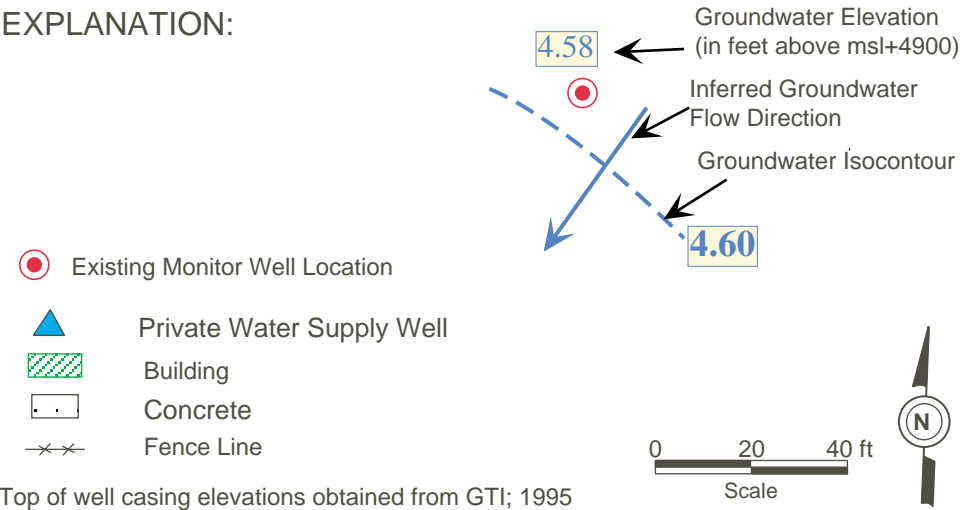
SIMPLIFIED GEOLOGIC AND CONTAMINANT CROSS SECTION A-A'

G & S - ISLETA
6100 Isleta Blvd, SW
Albuquerque, New Mexico

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Map Drawn by: WJB	Client: BCEHD
Base Drafted by: OG	Project: 99-00-1189
Date: April 2001	Figure 5



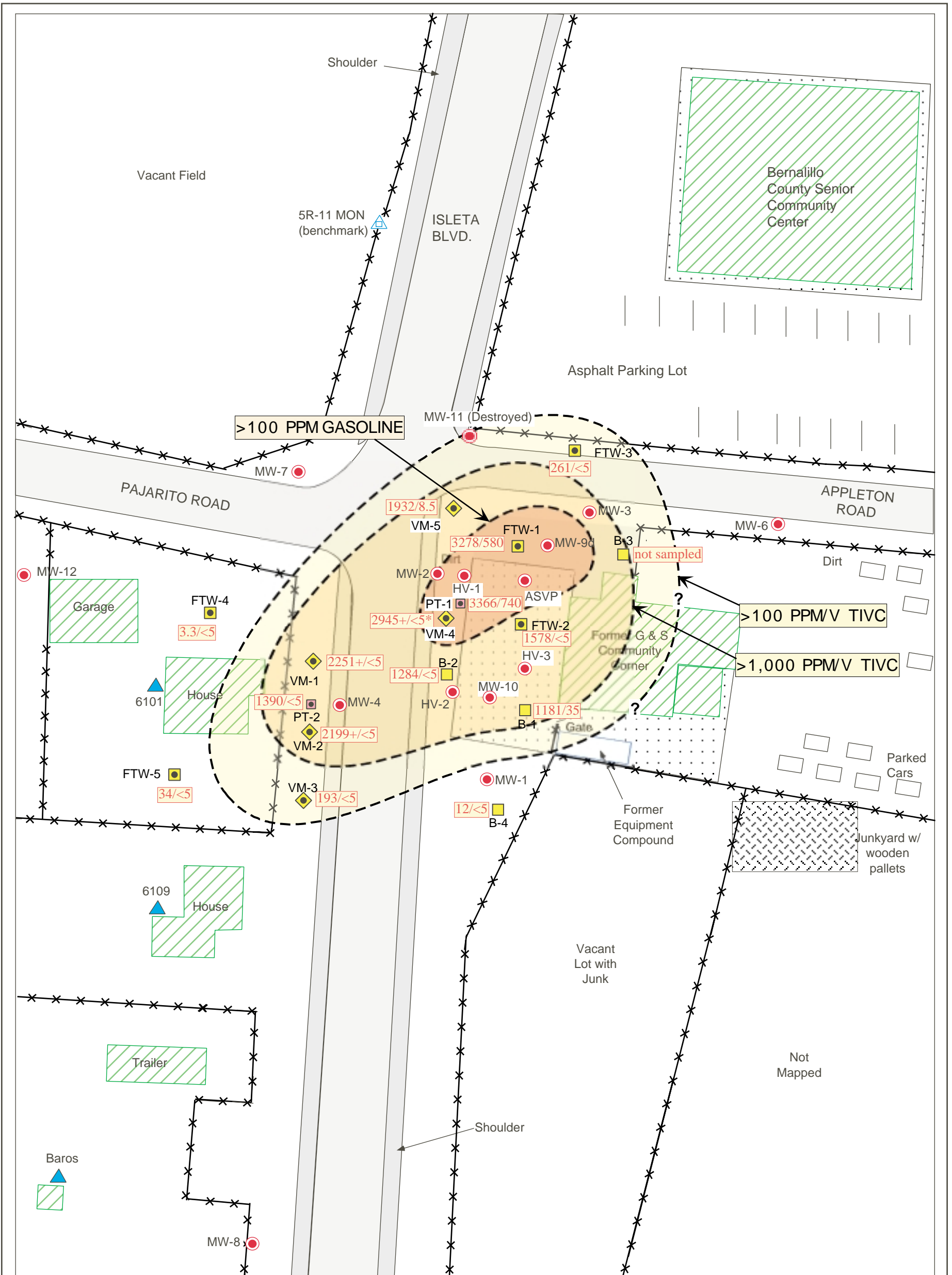
EXPLANATION:



GROUNDWATER
POTENTIOMETRIC
SURFACE MAP
9-19-00

Former G & S Community Center
6100 Isleta SW, Albuquerque, New Mexico

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Map Drawn by: WJB	Client: BCEHD
Base Drawn by: KGF/WJB/ABL	Project: 99-00-1189
Date : April 2001	Figure 6



EXPLANATION:

- New 4" Diameter VE/Monitor Well
- New 2" Diameter Monitor Well
- New Soil Boring
- New Multiple Completion Pilot Test Well
- Existing Monitor Well Location
- Private Water Supply Well
- Building
- Concrete
- Fence Line
- Scale
- Maximum Soil Headspace Concentration (In parts per million/volume (ppm/v))
- Maximum Soil Total Petroleum Hydrocarbons (TPH) Concentration (In parts per million (ppm))
- Soil Headspace Isocontour (In ppm/v)
- TPH gasoline range Isocontour (in ppm)

MAXIMUM SOIL HEADSPACE (TIVC)/ TOTAL PETROLEUM HYDROCARBONS (TPH) ISOCONCENTRATION MAP

Former G & S Community Center
6100 Isleta SW, Albuquerque, New Mexico

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Map Drawn by: WJB

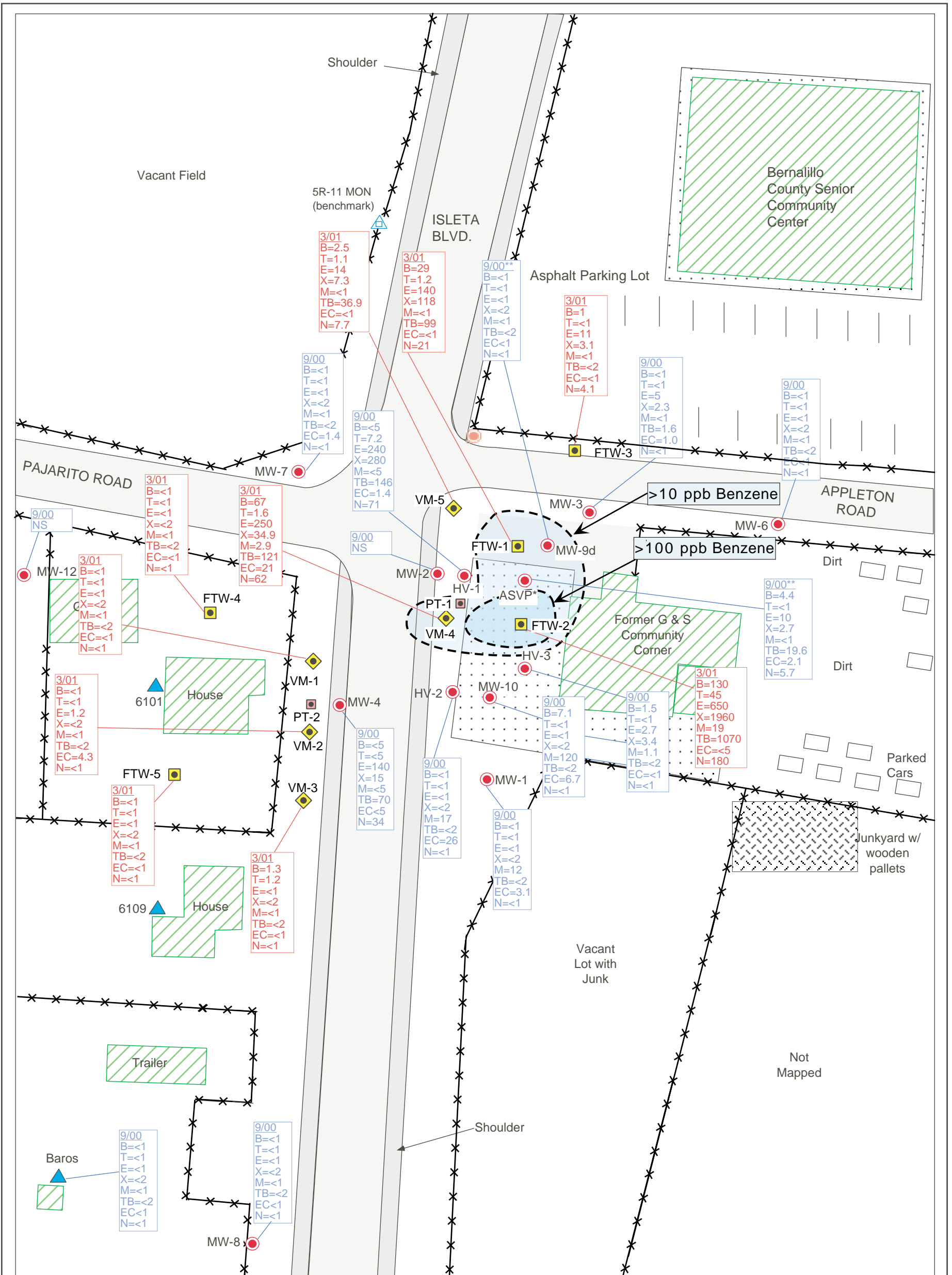
Client: BCEHD

Base Drawn by: KGF/WJB/ABL

Project: 99-00-1189

Date : April 2001

Figure 7



EXPLANATION:

- New 4" Diameter VE/Monitor Well
- New 2" Diameter Monitor Well
- New Multiple Completion Pilot Test Well
- Existing Monitor Well Location
- Private Water Supply Well

- Building
- Concrete

- Fence Line
- Scale

>10 ppb Benzene Groundwater Isoconcentration (in ppb)

Groundwater Quality Data (in ppb)

9/00	Date of Sampling
B=<1	B=Benzene
T=<1	T=Toluene
E=<1	E=Ethyl Benzene
X=<2	X=Total Xylenes
M=<1	M=MTBE
TB=<2	TB=Trimethyl Benzenes
EC=<1	EC=1,2 Dichloroethane
N=<2	N=Naphthalenes

ND=Non-detect for analyzed compounds

BENZENE GROUNDWATER
QUALITY
ISOCONCENTRATION MAP
9-00 and 3-01

Former G & S Community Center
6100 Isleta SW, Albuquerque, New Mexico

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Map Drawn by: WJB	Client: BCEHD
Base Drawn by: KGF/WJB/ABL	Project: 99-00-1189
Date : April 2001	Figure: 8

TABLE 1
00-01-1189-03 • G&S Corner, 6100 Isleta Blvd. SW
NMED Facility #28207
SUMMARY OF GROUND WATER ELEVATION MEASUREMENTS OF EXISTING WELLS

WELL NUMBER	ELEVATION† (feet above datum)	DATE	STATIC (feet BG)	WATER LEVEL (feet AD)	(+) = RISING (-) = FALLING
MW-1	4912.02	9/19/00	7.75	4904.27	**
MW-3	4912.02	9/20/00	7.07	4904.95	**
MW-4	4912.29	9/20/00	7.84	4904.45	**
MW-6	4911.75	9/19/00	6.94	4904.81	**
MW-7	4911.95	9/20/00	7.37	4904.58	**
MW-8	4911.14	9/19/00	7.91	4903.23	**
MW-9d	4911.76	9/19/00	6.97	4904.79	**
MW-10	4911.45	9/19/00	7.15	4904.30	**
HV-1	ND	9/19/00	6.81	ND	**
HV-2	ND	9/19/00	7.11	ND	**
HV-3	ND	9/19/00	7.37	ND	**
ASVP	4911.82	9/19/00	7.74	4904.08	**

† - Determined by GTI, 1995

ND - Not Determined

** - will be determined with another measurement

Data checked _____ / _____

TABLE 1
00-01-1189-03 • G&S Corner 6100 Isleta Blvd. SW
NMED FACILITY #28207
SUMMARY OF GROUND WATER ELEVATION MEASUREMENTS OF NEW WELLS

WELL NUMBER	ELEVATION (feet above datum)	DATE	STATIC (feet BG)	WATER LEVEL (feet AD)	(+) = RISING (-) = FALLING
FTW-1	†	3/22/01	8.07	†	**
FTW-2	†	3/22/01	8.08	†	**
FTW-3	†	3/22/01	7.68	†	**
FTW-4	†	3/22/01	7.71	†	**
FTW-5	†	3/22/01	6.99	†	**
VM-1	†	3/22/01	7.80	†	**
VM-2	†	3/22/01	8.14	†	**
VM-3	†	3/22/01	7.98	†	**
VM-4	†	3/22/01	8.10	†	**
VM-5	†	3/22/01	8.06	†	**

† - pending survey

** - will be determined with another measurement

Data checked _____ / _____

TABLE 2
G&S Corner, 6100 Isleta
00-01-1189-03 • NMED FACILITY # 28207
SOIL BORING ANALYSIS RESULTS
EPA Method 8260

		ORGANICS									
LOCATION	DATE SAMPLED	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE	EDB	EDC	TMB	NAPHTHALENE
UNITS STANDARDS		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg 50	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
B-1, 7.5-8.5 (SM/SC)	2/13/01	< 0.05	< 0.05	< 0.05	< 0.10	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
B-1, 10.5-11.0 (SM/SC)	2/13/01	< 0.05	< 0.05	< 0.05	< 0.10	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
B-2, 8.5-9.0 (SM/CL)	2/13/01	0.06	< 0.05	0.29	0.08	0.43	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
B-4, 9' (SM)	2/21/01	0.19	0.15	< 0.05	0.16	0.5	< 0.05	< 0.05	< 0.05	< 0.1	2.30
B-5, 8.5-9.0 (SM)	2/21/01	< 0.05	< 0.05	0.06	< 0.10	0.26	< 0.05	< 0.05	< 0.05	< 0.1	0.41
FTW-1-6.5'-7' (ML/CL)	2/2/01	< 0.50	< 0.50	7.7	53.4	62.1	< 0.5	< 0.5	< 0.5	49	6.9
FTW-1-8.5'-9' (SM)	2/2/01	< 0.05	< 0.05	0.41	0.96	1.37	< 0.05	< 0.05	< 0.05	0.35	0.15
FTW-2-7' (ML/SM)	2/2/01	< 0.05	< 0.05	0.70	1.48	2.28	< 0.05	< 0.05	< 0.05	3.32	0.61
FTW-2-9.5' (SM)	2/2/01	0.06	< 0.05	0.24	< 0.10	0.3	< 0.05	< 0.05	< 0.05	< 0.10	0.09
FTW-4,7.-7.5 (SM)	2/7/01	< 0.05	< 0.05	< 0.05	< 0.10	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
FTW-5,7.-7.5 (CL)	2/7/01	< 0.05	< 0.05	< 0.05	< 0.10	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
PT-1, 7.5-8. (ML/SM)	2/14/01	< 0.5	< 0.5	15	32.6	47.6	< 0.5	< 0.5	< 0.5	49.8	5.2
PT-2, 7.5-8. (SM)	2/14/01	< 0.25	< 0.25	< 0.25	< 0.50	<1.25	< 0.25	< 0.25	< 0.25	< 0.50	< 0.25
VM-1, 7-7.5 (ML/CL)	2/9/01	< 0.05	< 0.05	< 0.05	< 0.1	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
VM-2, 7.5-8.0 (SM/CL)	2/9/01	< 0.05	< 0.05	< 0.05	< 0.1	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
VM-3, 7-7.5 (SM)	2/12/01	< 0.05	< 0.05	< 0.05	< 0.1	<0.25	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05
VM-4, 8.5'-9' (ML)	2/12/01	< 0.05	< 0.05	0.22	0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.22	0.24
VM-4, 14.5-15 (CL/CH)	2/12/01	0.06	< 0.05	0.14	0.2	0.4	< 0.05	< 0.05	< 0.05	< 0.14	< 0.05
VM-5, 8.0-8.5 (SM)	2/21/01	< 0.05	< 0.05	0.15	0.16	0.31	< 0.05	< 0.05	< 0.05	0.51	0.15

BOLD - Above NMED Standards
Data checked _____ / _____

TABLE 2
G&S CORNER, 6100 ISLETA
00-01-1189-03 • NMED FACILITY #28207
SOIL BORING ANALYSIS RESULTS
EPA Method 8015 (GRO)

LOCATION	HYDROCARBONS								Total GRO
	C6-C7	C7-C8	C8-C9	C9-C10	C10-C11	C11-C12	C12-C13	C13-C14	
UNITS STANDARDS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg 100
B-1, 7.5-8.5 (SM/SC)	4.41	10.22	7.63	4.025	3.2	2.835	2.17	0.595	35
B-1, 10.5-11.0 (SM/SC)	1.72	2.68	1.87	1.57	1.18	0.58	0.33	0.08	10
B-2, 8.5-9.0 (SM/CL)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
B-4, 9' (SM)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
B-5, 8.5-9.0 (SM)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
FTW-1-6.5'-7' (ML/CL)	17.4	75.5	138	127.6	146.7	47	22	5.8	580
FTW-1-8.5'-9' (SM)	0.559	1.417	3.991	3.016	2.6	0.975	0.429	0.052	13
FTW-2-7' (ML/SM)	2.451	5.757	7.353	7.296	14.76	10.2	7.125	2.052	57
FTW-2-9.5' (SM)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
FTW-4,7.-7.5 (SM)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
FTW-5,7.-7.5 (CL)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
PT-1, 7.5-8. (ML/SM)	74.72	149.4	153.2	132.4	149.4	48.1	25.5	7.3	740
PT-2, 7.5-8. (SM)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
VM-1, 7-7.5 (ML/CL)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
VM-2, 7.5-8.0 (SM/CL)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
VM-3, 7-7.5 (SM)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
VM-4, 8.5'-9' (ML)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
VM-4, 14.5-15 (CL/CH)	ND	ND	ND	ND	ND	ND	ND	ND	< 5.0
VM-5, 8.0-8.5 (SM)	0.221	0.646	1.148	1.386	2.635	1.207	0.927	0.332	8.5

BOLD - Above NMED Standards

ND - Not Detectable

Data Checked _____ / _____

TABLE 2
G&S CORNER, 6100 ISLETA
00-01-1189-03 • NMED FACILITY #28207
SOIL BORING ANALYSIS RESULTS
TCLP Lead

LOCATION	DATE SAMPLED	LEAD
UNITS		mg/L
FTW-1-8.5'-9' (SM)	2/2/01	0.0163
FTW-2-9.5' (SM)	2/2/01	0.0166

Data Checked _____ / _____

TABLE 3
G & S CORNER, 6100 ISLETA
00-01-1189-03 • NMED FACILITY #28207
CURRENT GROUND WATER ANALYSIS RESULTS

		ORGANICS									INORGANICS						INDICATORS			
LOCATION	DATE SAMPLED	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	TMB	NAPHTHALENE	IRON	PHOSPHATE	SULFATE	ALKALINITY as CaCO ₃	DISS O ₂	NITRATE	pH	CONDUCTIVITY	TEMP	
		µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	ug/l	µg/l	µg/l										
		10	750	750	620	100	0.1	10		30										
UNITS STANDARDS											mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		µmhos/cm	°C	
											SOLUBLE	TOTAL								
MW - 1	9/19/00	< 1.0	< 1.0	< 1.0	< 2.0	12	< 1.0	3.1	< 2.0	< 1.0	0.1	0.1	0.0	0.0	500	5.0	0.8	6.90	2070	24.0
MW - 3	9/20/00	< 1.0	< 1.0	5.0	<3.3	< 1.0	< 1.0	< 1.0	< 2.6	< 1.0	2.0	2.0	1.0	0.1	550	2.0	1.0	7.17	3009	26.1
MW - 4	9/20/00	< 5.0	< 5.0	140	< 20	< 5.0	< 5.0	< 5.0	< 75	34	0.2	0.2	0.1	0.0	600	0.5	1.0	6.98	3115	27.4
MW - 6	9/19/00	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	0.2	0.3	1.5	0.0	600	3.0	1.5	7.47	3385	27.6
MW - 7	9/20/00	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	1.4	< 2.0	< 1.0	1.0	1.5	0.6	0.0	600	2.0	1.0	7.07	2375	24.3
MW - 8	9/19/00	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	0.0	0.1	0.3	0.0	350	2.0	4.5	7.02	3603	23.4
MW - 9d	9/19/00	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	0.1	0.2	0.6	0.0	400	1.0	1.0	7.35	2064	21.2
MW - 10	9/19/00	7.1	< 1.0	< 1.0	< 2.0	120	< 1.0	6.7	< 2.0	< 1.0	1.5	1.5	4.0	0.0	600	3.0	1.0	7.10	2740	24.4
HV - 1	9/19/00	< 5.0	7.2	240	280	< 5.0	< 5.0	14	146	71	1.5	4.0	2.0	0.1	600	0.5	0.6	7.26	3288	24.7
HV - 2	9/19/00	< 1.0	< 1.0	< 1.0	< 2.0	17	< 1.0	26	< 2.0	< 1.0	1.0	4.0	1.5	0.0	550	1.0	0.4	7.05	2496	24.5
HV - 3	9/19/00	1.5	< 1.0	2.7	<4.4	1.1	< 1.0	< 1.0	< 2.0	< 1.0	0.6	0.6	0.6	0.0	600	2.0	0.8	7.10	2690	24.9
ASVP	9/19/00	4.4	< 1.0	10	<3.7	< 1.0	< 1.0	2.1	19.6	5.7	2.0	3.0	0.0	0.0	600	3.0	1.0	7.31	3464	24.8
Baros	9/20/00	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	1.0	1.0	2.0	0.0	350	2.0	0.3	7.06	1670	18.4
Rinsate	9/20/00	< 1.0	1.1	2.5	<9.5	< 1.0	< 1.0	< 1.0	14.1	6.0	*	*	*	*	*	*	*	*	*	*
Trip Blank	9/20/00	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	*	*	*	*	*	*	*	*	*	*
FTW-1	3/22/01	29	1.2	140	118.8	< 1.0	< 1.0	< 1.0	99	21	3.0	4.0	1.0	0.8	350	3.5	1.5	7.48	293	15.3
FTW-2	3/22/01	130	45	650	1960	19.0	< 5.0	< 5.0	1070	180	0.4	1.0	0.6	7.0	550	4.0	0.6	7.81	172.3	17.3
FTW-3	3/22/01	1.0	< 1.0	11.0	3.1	< 1.0	< 1.0	< 1.0	1.3	4.1	1.0	1.0	1.0	1.0	400	3.0	1.0	8.00	185	17.9
FTW-4	3/22/01	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	2.0	3.0	4.0	2.0	550	4.0	2.5	7.64	231	15.1
FTW-5	3/22/01	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	0.8	1.0	1.5	0.0	250	3.0	2.5	7.49	279	19.2
VM-1	3/22/01	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	1.0	1.5	1.0	8.0	550	3.0	2.0	7.48	268	14.2
VM-2	3/22/01	< 1.0	< 1.0	1.2	1.6	< 1.0	< 1.0	4.3	< 2.0	< 1.0	4.0	4.0	5.0	2.0	550	4.0	1.0	7.85	156.2	16.4
VM-3	3/22/01	1.3	1.2	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	1.5	2.0	8.0	4.0	550	3.0	1.5	7.63	233	15.1
VM-4	3/22/01	67	1.6	250	34.9	2.9	< 1.0	21	121	62	†	†	†	†	†	†	†	7.60	264	16.5
VM-5	3/22/01	2.5	1.1	14.0	7.3	< 1.0	< 1.0	< 1.0	36.9	7.7	†	†	†	†	†	†	†	7.69	302	17.4
TRIP BLANK	3/22/01	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	*	*	*	*	*	*	*	*	*	*

BOLD - Above Action Limits

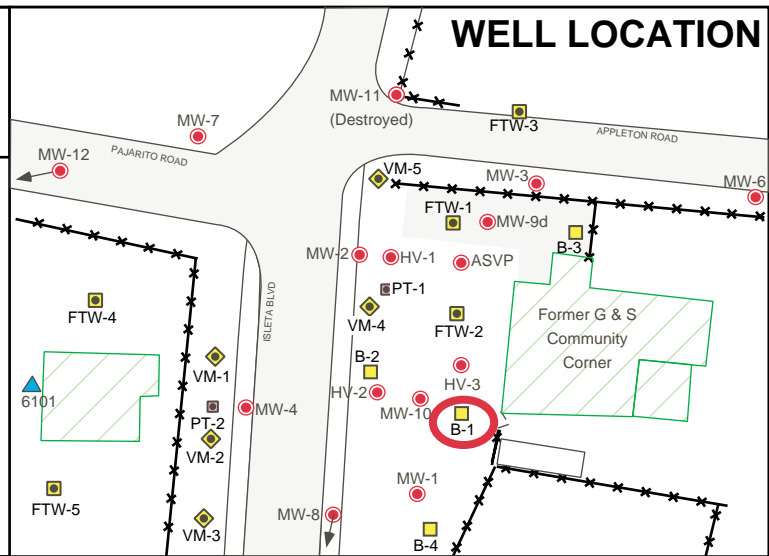
* - not sampled

† - Water too dark for Colorimetric Tests



Data checked _____ / _____

SITE ID: ISLETA-G&S
CLIENT: BCEHD
Well/Borehole ID: B-1

DATE OF DRILLING: 02-13-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/NeveX
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 8'
 TOTAL DEPTH: 16'
 CASING: NA
 SCREEN: NA
 SURFACE COMPLETION: NA



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete/Grout		H.A. 100%				1		
					3.0	2		
		H.A. 100%				3		
				13.3	4			
		No Recovery				5		No Recovery
						6		
		4/3/3 75%	Geo Tech 9.0-9.5	1,181 1,014	8			
		5/4/3 100%	B-1 7.5'-8.5' 9:15		9			
			35	13.7	10			
		7/6/6 100%	B-1 10.5'-11.0'	10	11			
				6.8	12			
		8/7/6 100%	Geo Tech		13			
				31.6	14			
		4/4/4 100%		4.0	15			
					16			
					17			
			18					
			19					
			20					

Surface Conditions: Asphalt

0.0'-2.0' (SM) (10YR 6/8) 100% Asphalt (3"). Fine to medium silty sand, slightly soft, moist, no odor, looks like fill, some cobbles just below concrete,

2.0'-4.0' (SM/SC) (5YR 4/6) 100% Silty/clayey fine sand, soft, slightly moist, no odor.

4.0'-6.0' No recovery, probably pushed a cobble, cutting look like (SM/SC) from (2.0'-4.0') above.

6.0'-8.0' (SM/SC) (5YR 4/6, N3) 75% Silty/clayey fine to medium sand, top ~1" (5YR 4/6) soft, no plasticity, moist/wet, odor, soft, almost smears.

8.0'-10.0' (5YR 4/6, N3) 100% 0.0'-0.2' (SM/SC) Silty/clayey fine to medium sand, soft, moist, no odor. 0.2'-2.0' (CL) Clay, traces of fine silty sand, coarse sand-carbonate and mottled color, main body is (10R 3/6) with (SG 6/1) veins, firm, moderate plasticity, slight odor.

10.0'-12.0' (5YR 4/6, N3) 0.0'-1.0' (SM/SC) Silty clayey fine to medium sand, wet, color change at (10.5) to (N3), odor, back to (5YR) at 11.0'. 1.0'-2.0' (CL) Clay, traces of coarse sand; Stage 1 carbonate as above, very moist, no odor (5YR 4/6).

12.0'-14.0' (SM/SC) (5YR 4/6, 10R 3/6) 100% 0.0'-1.0' (SM/SC) (5YR 4/6) Very wet/runny fine silty sand, clayey sand, sticky, no odor, like syrup. 1.0'-2.0' (10YR 3/6) (CH) Clay, very nice example, clean, excellent plasticity, firm but very ductile/malable, moist, no odor, dense.

14.0'-16.0' (10R 3/6, 5Y 4/1) 100% 0.0'-1.0' (CH) Same as (12.0'-14.0') above, no odor. 1.0'-2.0' (SM/SC) Abrupt change (5Y 4/1) fine silty clayey sand, moist/wet, smears so-so, little to no plasticity, soft to firm, no odor.

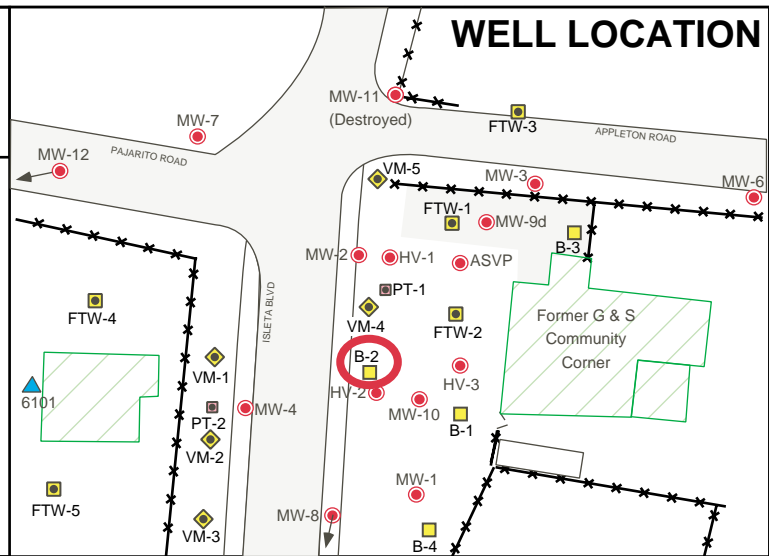


TECUMSEH PROFESSIONAL ASSOCIATES, INC.

ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: ISLETA-G&S
CLIENT: BCEHD
Well/Borehole ID: B-2

DATE OF DRILLING: 02-13-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/NeveX
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 8'
 TOTAL DEPTH: 16'
 CASING: NA
 SCREEN: NA
 SURFACE COMPLETION: NA



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete/Grout		H.A. 100%				1		
					1.3	2		
		H.A. 100%				3		
					1.6	4		
		6/5/5 100%				5		
					5.9	6		
		5/4/4 60%				7		
					1,284	8		
		6/4/3 100%		B-2 8.5'-9.0' <div><5</div>	68.2	9		
					11	10		
		4/3/3 100%				11		
					3.0	12		
		5/4/4 100%				13		
					3.7	14		
		5/5/4 100%				15		
					8.9	16		
					17		TD = 16'	
					18			
					19			
					20			

Surface Conditions: Gravel
0.0'-2.0' (SM) (5YR 4/6) 100% Gravel~3". Silty fine to medium sand, slightly moist, no odor, soft.
2.0'-4.0' (SM/SC) (5YR 4/6) 100% Silty/clayey sand, fine to medium, smear but non-plastic, moist, no odor.
4.0'-6.0' 100% 0.0'-1.0' (SM) Same as (0.0'-2.0') above. 1.0'-2.0' (SC) Clayey fine to medium silty sand, firm to soft, low to no plasticity, no odor.
6.0'-8.0' (ML) (5YR 4/6) 60% Very fine sand/silt, clayey, moist, soft to firm, slight odor, smears well, non-plastic.
8.0'-10.0' (5YR 4/6, 10YR 3/3) 100% 0.0'-0.3' (SM) (5YR 4/6) Silty fine sand, moist, slight odor, soft. 0.3'-2.0' (CL) (10YR 3/3) Clay, traces of coarse sand, carbonate, firm, medium plasticity, moist, smears well. 0.2'-0.7' (N5) Contaminant is sitting on clay moving through (SM) sharp contact.
10.0'-12.0' (10YR 3/3) 100% 0.0'-0.3' (CL) Same as (8.0'-10.0' (0.3'-2.0')) above. 0.3'-1.0' (ML) Very wet, syrup like, sticky, no odor. 1.0'-2.0' (CL/ML) Sandy/silty clay, low to good plasticity, firm to soft, no odor, moist.
12.0'-14.0' (5YR 4/6, 10YR 3/3) 100% 0.0'-1.0' (CH) Good example, soft, great plasticity, very moist, ductile, clean, no odor. 1.0'-2.0' (CL) (10YR 3/3) Clay with trace of fine sand, coarse sand carbonate Stage 2 to (5G 6/1).
14.0'-16.0' (CL) (10R 3/3) 100% Mottled/firm/no odor, clay with traces of fine sand, coarse sand carbonate.



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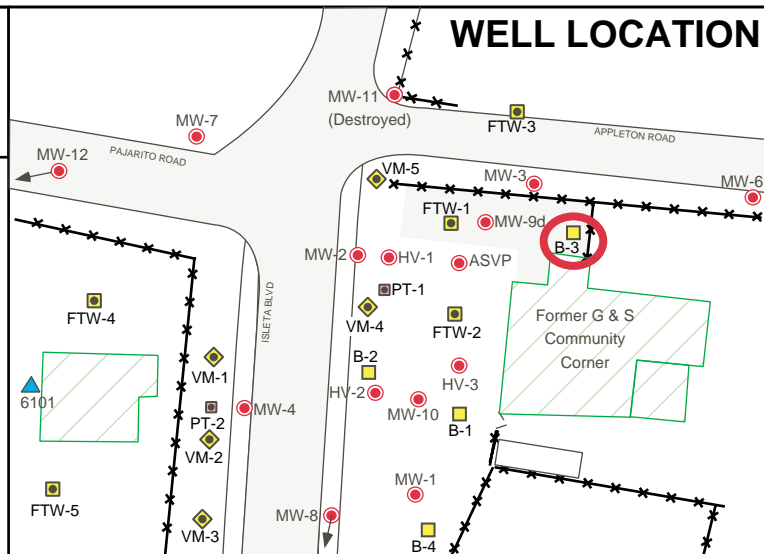
ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **B-3**

DATE OF DRILLING: 02-21-01
 LOGGED BY: W. Brown
 DRILLER: S. Grossetete/Enviroworks
 BOREHOLE DIAMETER: 8"
 DRILLING METHOD: Hollow Stem Auger/Posthole
 SAMPLING METHOD: 5' Core Barrel/Posthole
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: Not Encountered
 TOTAL DEPTH: NA
 CASING: NA
 SCREEN: NA
 SURFACE COMPLETION: NA



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
					0.2	1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions: Asphalt

0.0'-0.2' Asphalt.

0.2'-3.0' (SM/SC) Brown (10YR) Clayey silty sand, unconsolidated, moist, with ~10% pebbles in upper 1/2 (fill).

3.0'-? Silty sandy gravel, cobbles to 4" (fill) and concrete blocks (remnants of former UST system in old tank hold?).

Auger refusal in 3 separate locations - unable to advance past cobble/concrete rubble layer at 3'.



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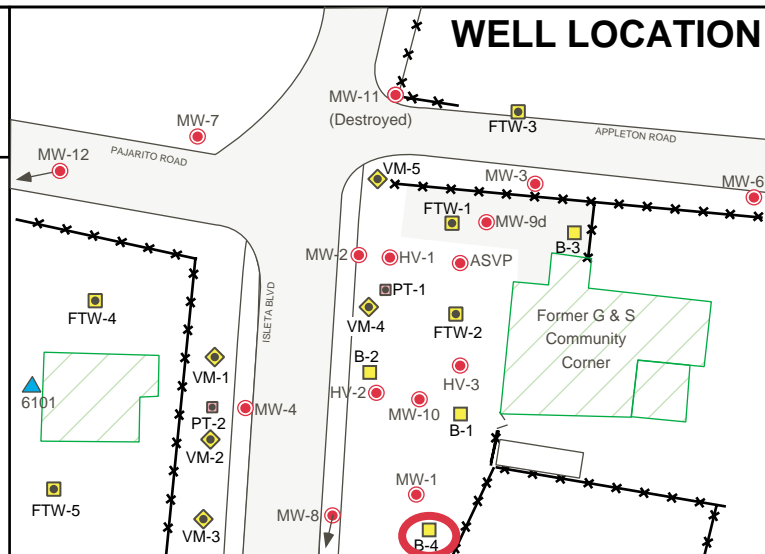
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 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **B-4**

DATE OF DRILLING: 02-21-01
 LOGGED BY: W. Brown
 DRILLER: S. Grossetete/Enviroworks
 BOREHOLE DIAMETER: 8"
 DRILLING METHOD: Hollow Stem Auger/Posthole
 SAMPLING METHOD: Split Spoon/Posthole
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: ~8
 TOTAL DEPTH: 14'
 CASING: NA
 SCREEN: NA
 SURFACE COMPLETION: NA



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Natural Formation Clean Drill Cuttings		100%			3.2	1		
						2		
						3		
						4		
		80%			1.9	5		
						6		
						7		
						8		
					12.0	9		
						10		
					0.8	11		
						12		
		100%				13		
					0.9	14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions: Grass

0.0'-3.5' (SC) Clayey sand grading to (SM/SC) clayey silty sand (7.5YR) reddish-yellow, moist, medium plastic in (SC) intervals, non-plastic, unconsolidated in (SM/SC) intervals, no odor. (posthole)

3.5'-4.0' (SP) Tan (10YR) Fine grained sand, unconsolidated, slightly moist, no odor, well sorted.

4.0'-9.0' Split Spoon 4.0' sample. 0.0'-1.0' Cave in. 1.0'-3.5' Fining downwards sequence. 1.0'-1.8' (SP) As above grading to 1.8'-2.3' (SM) Silty very fine sand, moist, no apparent hydrocarbon odor, brown (10YR). 2.3'-3.0' (CL/SC) Clay-very fine sand mixture, dense, plastic, no odor. 3.0'-3.3' (ML) Silt with moist sand and clay. 3.3'-3.5' (SM) Clayey silty very fine sand, water saturated, no apparent hydrocarbon odor, unconsolidated.

9.0'-14.0' Split Spoon 5.0' sample. 0.0'-0.3' (SM) As above, water saturated, no odor. 0.3'-1.0' (CL) Reddish brown dense silty clay, plastic, no apparent hydrocarbon odor. 1.0'-3.5' (CH) Brown very dense clay, plastic, moist, grades to 3.5'-4.0' (SC) Clayey very fine sand, water saturated, soft, grades to 4.0'-4.5' (ML/CL) Silt-clay mixture, weakly plastic, medium soft to 4.5'-5.0' (CH) As above.

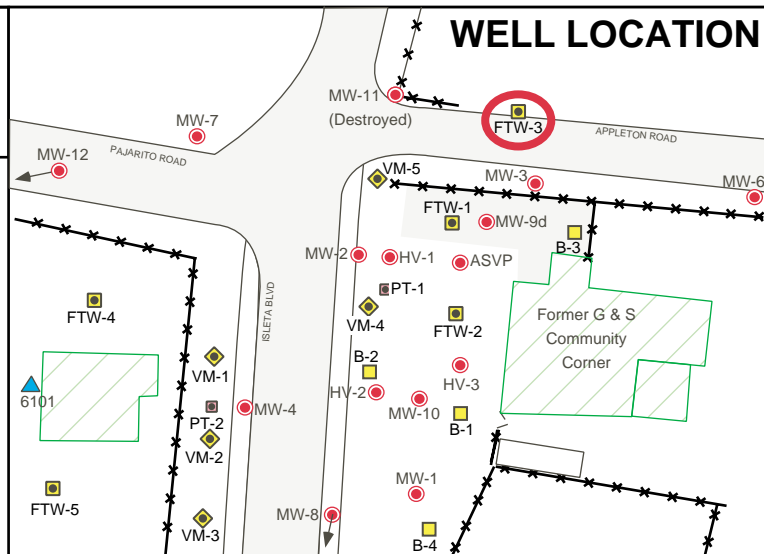


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ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: ISLETA-G&S
CLIENT: BCEHD
Well/Borehole ID: B-5/FTW-3

DATE OF DRILLING: 02-21-01
 LOGGED BY: S. Grietens
 DRILLER: S. Grossetete/Enviroworks
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: 2' Long 3" Dia. Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 8.5'
 TOTAL DEPTH: 16'
 CASING: 0-5' 2" Dia. Sched 40 PVC Blank PVC
 SCREEN: 5'-15' 0.01 Slot 2" Dia. Sched 40 PVC
 SURFACE COMPLETION: 8"X12" Manway with Concrete Pad



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete	Concrete	100%			1.6	1		
Bentonite Pellets (activated)	Bentonite Pellets (activated)	100%			1.5	2		
					1.1	3		
					261	4		
					12.8	5		
					4.8	6		
					1.0	7		
					1.2	8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions: Gravel
0.0'-2.0' (SM) (5YR 4/6) 100% Some gravel, fine to medium silty sand, soft slightly moist, no odor.
2.0'-4.0' (SM/SC) (5YR 4/6) 100% Fine silty/clayey sand, soft, slightly moist, no odor, trace plasticity, smears so-so.
4.0'-6.0' (SP) (10YR 6/8) 100% Well sorted fine sand, trace fines, soft, slightly moist, no odor.
6.0'-8.0' (ML) (10YR 3/6) 100% Clayey very fine sand, firm, slightly moist, slight plasticity, no odor.
8.0'-10.0' (SM) (5YR 4/6) 100% Very fine silty sand, wet, soft, faint odor.
10.0'-12.0' (CL) (5YR 4/6, 5Y 4/1) 100% Very fine silty/sandy clay, firm, moist, no odor, trace coarse sand, carbonate, color change at 11.0'.
12.0'-14.0' (5YR 4/6, 5Y 4/1) 100% 12.0'-13.5 (CL) Same as (10.0'-12.0') above, color is grading from mottled (5YR 4/6, 5Y 4/1) to (5Y 4/1). 13.5'-14.0' (ML) Very fine clayey silt, soft, very moist, no plasticity, smears well, no odor.

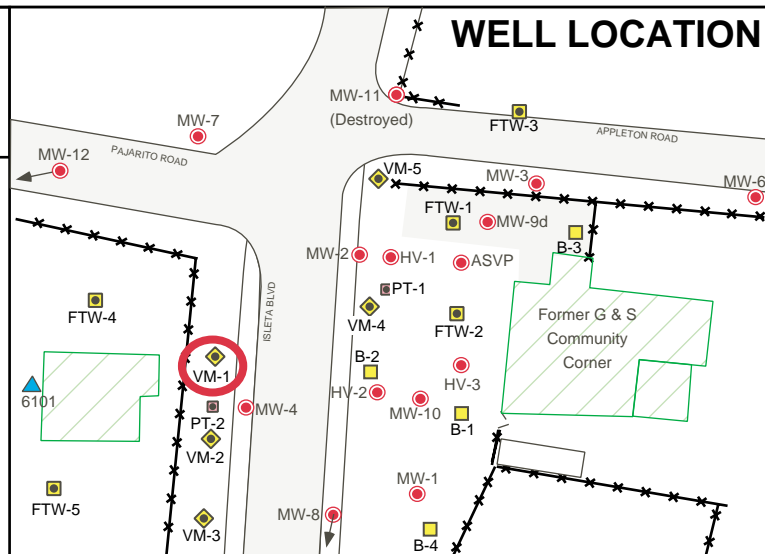


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ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**CLIENT: **BCEHD**Well/Borehole ID: **VM-1**

DATE OF DRILLING: 02-09-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Neve
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 7'
 TOTAL DEPTH: NA
 CASING: 0-5' 4" Dia. Sched 40 PVCBlank
 SCREEN: 5'-15' 0.01 Slot 4" Dia. Sched 40 PVC Hi-Flow
 SURFACE COMPLETION: 12"

**USCS - LITHOLOGIC DESCRIPTION**

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete		NA	100%			1		
Bentonite Pellets (activated)		NA	100%		0.8	2		
20-40 Sand		5/5/4	75%		0.4	3		
10-20 Sand		6/5/4	100%	VM-1 7.0'-7.5'	0.3	4		
		5/5/4	100%	<5	2251+ (LF)	5		
		3/2/2	100%		0.8	6		
		7/6/6	100%		4.3	7		
		4/3/3	100%		2.4	8		
					5.9	9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions: Loose dirt

0.0'-2.0' (SM/SC) (10R 3/6) 100% Silty sand/clayey sand, firm, no plasticity but can be smeared, slightly moist, no odor, fine grained with fines.

2.0'-4.0' (ML) (5YR 4/6) 100% Very fine silt, soft, slight moisture, no odor, trace fine sand, sharp contrast from (SM/SC) to (ML).

4.0'-6.0' (5YR 4/6) 75% 0.0'-0.5' (ML) (10R 3/6) Very fine clayey silt, slight plasticity, firm, slight moisture, no odor. 0.5'-1.5' (SM) (5YR 4/6) Very fine silty sand, soft, slightly moist, no odor, sharp contact at (ML).

6.0'-8.0' 75% 0.0'-1.2' (ML) (10YR 3/6) Very fine silt grading to very fine sand, firm grading to soft, wet at 1.0', odor at 1.0', color change to (N5) at ~1.0'. 1.2'-1.5' (CL) Clay, medium plasticity, firm, color is (N5) odor, moist.

8.0'-10.0' 100% 0.0'-0.5' (SM/SC) (5YR 4/6) Clayey/silty fine sand moist, moist/wet, odor. 0.5'-2.0' (CL/CH) (5YR 4/6) Grades back and forth to fat dense, good plasticity, moist, to firm/soft, wet, medium plasticity, odor, no sharp contacts.

10.0'-12.0' (5YR 4/6) 100% 0.0'-1.0' (CL/CH) Grading back and forth as above, very wet, no odor. 1.0'-2.0' (CH) (5G 6/1) Firm, dense with carbonate fragments, no odor.

12.0'-14.0' 100% 0.0'-1.0' (CL) (5YR 4/6) Clay with trace of coarse sand, medium plasticity, wet soft no odor. 1.0'-2.0' (CH) (5Y 4/1, 5G 6/1) Clay, firm-hard, trace carbonate fragment, trace organics, trace coarse sand, good plasticity moist.

14.0'-16.0' (CH) (5YR 4/6) 100% Same as (12.0'-14.0'(1.0'-2.0')) above but at 1.0'-1.5' of this sample very runny like pudding, also very faint odor.

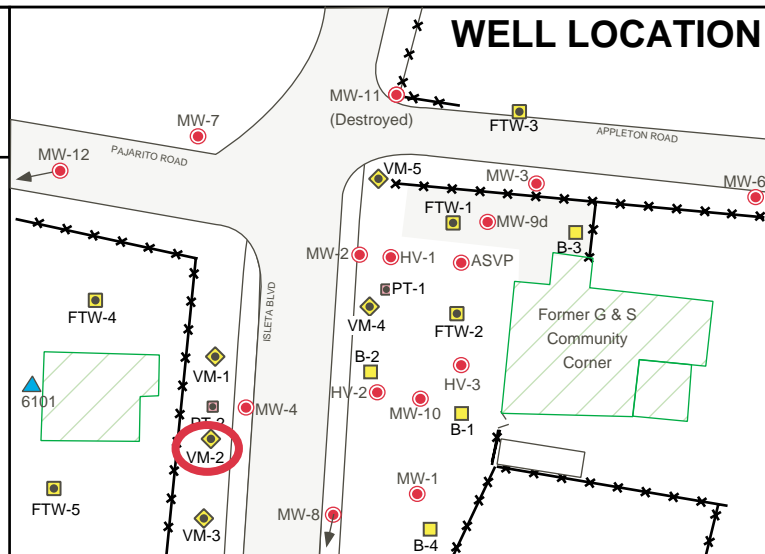


TECUMSEH PROFESSIONAL ASSOCIATES, INC.

ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**CLIENT: **BCEHD**Well/Borehole ID: **VM-2**

DATE OF DRILLING: 02-09-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Neve
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 7'
 TOTAL DEPTH: NA
 CASING: 0-5' 4" Dia. Sched 40 PVC Blank
 SCREEN: 5'-15' 0.01 Slot 4" Dia.
 Sched 40 PVC Hi-Flow
 SURFACE COMPLETION: 12"

**USCS - LITHOLOGIC DESCRIPTION****Surface Conditions:**

0.0'-2.0' (SC/SM) (10R 3/6) 100% Fine grained silty/clayey sand, none to slight plasticity, slightly moist, no odor, no sharp contacts.

2.0'-4.0' (SM) (5YR 4/6) 100% Very fine silty sand, soft, slightly moist, no odor.

4.0'-6.0' (SC/SM) (10YR 3/6, 5YR 4/6) 75% 0.0'-0.4' (SC) Clayey fine sand, firm, slightly moist, no odor, sharp contact at (SM). 0.4'-1.5' (SM) Very fine silty sand, soft, slightly moist, no odor.

6.0'-8.0' (SC/SM/CL) 90% 0.0'-0.7' (SC) Clayey fine sand (10R 3/6) firm, slightly moist, no odor grades quickly to (SM) ~1"-2". 0.7'-1.7' (SM) Fine silty sand (5YR 4/6) soft, wet, slight odor. 1.7'-1.9' (CL) (10R 3/6) Graded from (SM) over 1"-2", color change (N5) stained, odor, firm, medium plasticity, moist.

8.0'-10.0' (CL) (10R 3/6) 80% Lean clay/silty clay, medium plasticity, firm, moist, no odor.

10.0'-12.0' (CL/CH) 75% Clay very dense to firm, moderate to good plasticity, moist, carbonate fragments (possible shells), trace of coarse sand-fine gravel, color is mottled, main body is (10YR 3/3) with vein-like features of color (5Y 4/1), no odor (marbling look).

12.0'-14.0' Same as (10.0'-12.0') above. 0.4'-1.2' Very soft, wet, highly plastic, no odor.

14.0'-16.0' (CL) (5Y 4/1) Clay, firm, will crumble but will roll if played with, still has trace of carbonates and coarse sand-fine gravel, moist, no odor.

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete		HA 100%				1		
Bentonite Pellets (activated)		HA 100%			0.7	2		
						3		
					0.2	4		
10-20 Sand		5/5/4 75%				5		
					0.7	6		
		5/4/3 75%		VM-2 7.5'-8.0'	2,199+ 1,968+ (LF)	7		
8-12 Sand		4/3/2 80%		<5		8		
		4/3/2 75%			2.0	10		
		4/4/3 95%			13.0	12		
		5/5/2 100%			3.7	14		
					4.5	16		
						17		
						18		
						19		
						20		

TD = 16'



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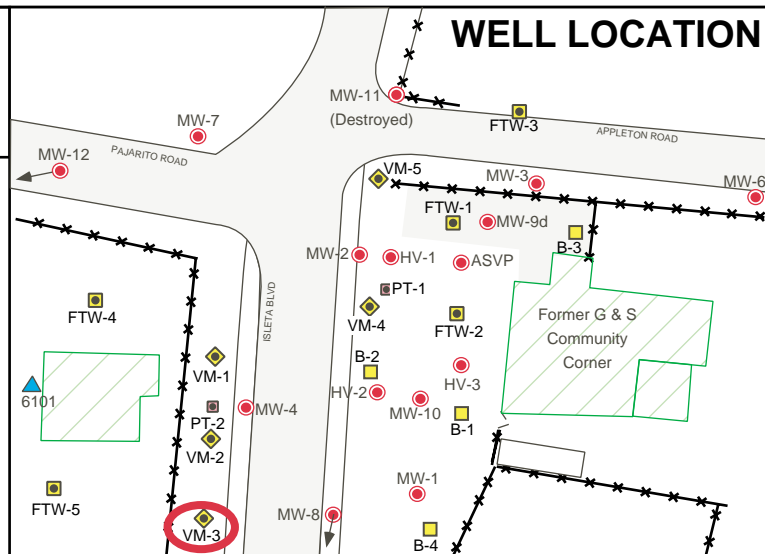
ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **VM-3**

DATE OF DRILLING: 02-12-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Nevev
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 7'
 TOTAL DEPTH: 16'
 CASING: 0-5' 4" Dia. Sched 40 PVC Blank
 SCREEN: 5'-15' 0.01 Slot 4" Dia.
 Sched 40 PVC Hi Flow
 SURFACE COMPLETION: 12X12 Manway with Concrete Pad



USCS - LITHOLOGIC DESCRIPTION

Surface Conditions:

0.0'-2.0' (SM/SC) (5YR 4/6) 100% Fine grained silty sandy-slightly clayey, will smear, slightly moist, well sorted, no odor.

2.0'-4.0' (SC) (10R 3/6) 100% Clayey fine sand, well sorted, firm, no to very low plasticity, slightly moist, no odor.

4.0'-6.0' 75% 0.0'-0.5' (SC) (10R 3/6) Firm, continuation from above, sharp contact at (SM). **0.5'-1.5' (SM) (5YR 4/6)** Well sorted, fine silty sand, soft, no odor, slightly moist till 1.3' then wet, may be spoon wash.

6.0'-8.0' 75% 0.0'-1.2' (SM) (5YR 4/6) Well sorted silty sand, fine grained, moist, wet at 1.0' (7") odor, color change at 1.0' (N5) mottled with (5YR 4/6) not real strong odor. **1.2'-1.5' (ML) (N5, 10R 3/6)** Fine clayey sand, firm, low to medium plasticity. color changes from (N5) to (10YR 3/6) over an inch, odor, sharp contact at (SM).

8.0'-10.0' (5YR 4/6, 10R 3/6) 100% 0.0'-0.7' (SM) (5YR 4/6) Well sorted, fine silty sand grading towards (SC) soft, wet, no odor. **0.7'-2.0' (ML)** Fine sandy-silty clay, firm, low to medium plasticity (1.6'-1.8' very wet, soft) trace of coarse sand, trace of carbonate-coarse sand size, no odor.

10.0'-12.0' (CL) (10YR 3/3, 5G 6/1) 100% Silty/lean clay, main body of sample is (10YR 3/3) with Stage 2 carbonate (5G 6/1) firm-soft, with low to good plasticity, moist, no odor, trace of fine gravel, trace of coarse sand-carbonate, very wet and soft at 0.8'-1.2', water appears to be moving through a small vein-like structure in clay, firm and moist above and below this area.

12.0'-14.0' (10YR 3/3, 5G 6/1) 80% 0.0'-0.6' (CL/CH) Same description as (10.0'-12.0') above grading to (CH), main body color more (5G 6/1), Stage 2 carbonate, carbonate appears to follow small fractures and grades away to (10YR 3/3) main body appears silty at places but no real continuity, same for some "spots" appear fat and dense.

14.0'-16.0' (10YR 3/3, 5G 6/1) 80% 0.0'-0.6' Same as (12.0'-14.0') above. **0.6'-1.6' (ML) (5G 6/1)** Sharp change at 0.6' to (ML) and color to all (5G 6/1) fine grained well sorted clayey sand with fines, trace of coarse sand and carbonate, none to slight plasticity, moist, no odor.

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete		H.A. 100%			0.3	1		
Bentonite Pellets (activated)		H.A. 100%				2		
10-20 Sand		6/6/5 75%			2.9	3		
		6/5/4 75%			0.6	4		
8-12 Sand		6/5/4 75%		VM-3 7.0'-7.5' (SM/CL) 10:00	193	5		
		3/3/2 100%		<5	179	6		
		5/4/4 100%			1.8	7		
		3/3/2 60%			2.3	8		
		3/3/2 80%			1.4	9		
					3.5	10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

TD = 16'



TECUMSEH PROFESSIONAL ASSOCIATES, INC.

ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

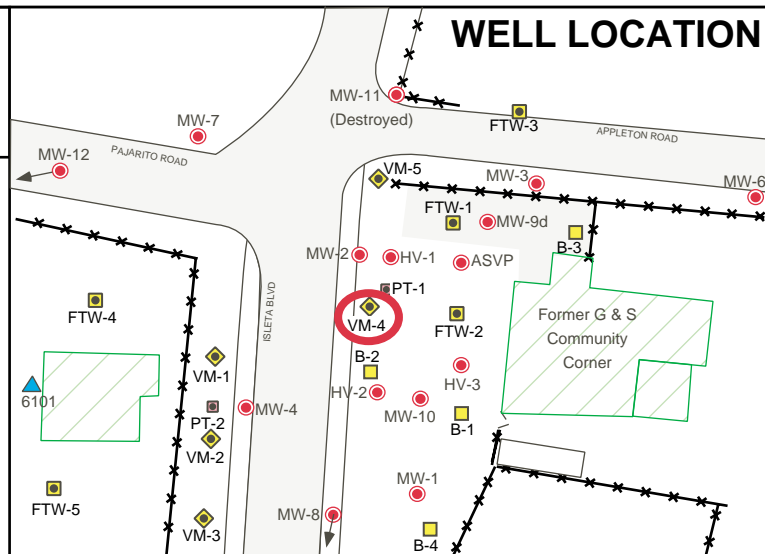
SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **VM-4**

DATE OF DRILLING: 02-12-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Neve
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 8'
 TOTAL DEPTH: 16'
 CASING: 0-5' 4" Dia. Sched 40 PVC Blank
 SCREEN: 5'-15' 0.01 Slot 4" Dia.
 Sched 40 PVC Hi-Flow
 SURFACE COMPLETION: NA

WELL LOCATION



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete		H.A.	100%			1		
Bentonite Pellets (activated)		H.A.	100%		1.0	2		
10-20 Sand		7/7/5	100%		0.7	3		
		5/5/4	60%		1.6	4		
8-12 Sand		3/3/10	100%	VM-4 8.5'-9.0' (ML)	2,945	5		
		3/3/5	60%	<5	135	6		
		5/5/4	80%	VM-4 14.5'-15.0' (ML)	9.1	7		
		6/5/5	90%	<5	2.0	8		
					2.6	9		
					24.0	10		
					3.0	11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions:

0.0'-2.0' (SM) (5YR 4/6) 100% Fine to medium sand, soft, slightly moist, no odor.

2.0'-4.0' (5YR 4/6, 10R 3/6) 100% 0.0'-1.5' (SM) Same as (0.0'-0.2') above. 1.5'-1.9' (ML) Very fine sandy/silty clay, firm, slightly moist, low plasticity, no odor. 1.9'-2.0' (SM) Same as (0.0'-2.0') above, sharp contacts.

4.0'-6.0' (SM) 100% Fine grained sand with minor silt, slightly moist, no odor.

6.0'-8.0' (ML) 100% 0.0'-1.2' (ML) (5YR 4/6) Fine silty clay, smears well, soft, slight odor. 1.2'-2.0' (ML) (5YR 4/6) Fine silty clay, more clay, firm, moist, odor, trace coarse sand, no sharp contacts, grades.

8.0'-10.0' (5YR 4/6, 10R 3/6) 100% 0.0'-1.0' (SM) (5YR 4/6) Very fine silty/sand, slightly clayey, firm, slight odor, moist/wet. 1.0'-2.0' (ML) (10YR 3/6, N5) Slight color change (N5) mottled, fine sand/silt clay, firm, odor, trace coarse sand and carbonate, no sharp contact.

10.0'-12.0' (ML) 60% Same as above (10YR 3/6) with mottling (5G 6/1); grading with depth to (CL).

12.0'-14.0' (CL) (10YR 3/3) 80% Clay, trace silt-very fine sand, firm, no odor, moist, medium plasticity, trace coarse sand/carbonate.

14.0'-16.0' (CL/CH) (10YR 3/3) 90% Clay, traces of silt, very fine sand, coarse sand and carbonate, firm to soft, low/medium plasticity to high plasticity, moist-wet, mottling coloring as described earlier, odor at 14.5'-15.0' took sample.



TECUMSEH PROFESSIONAL ASSOCIATES, INC.

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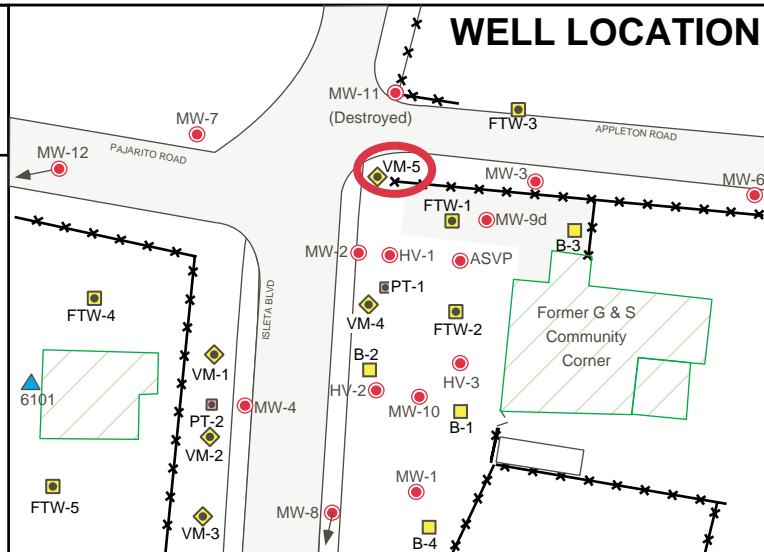
SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **VM-5**

DATE OF DRILLING: 02-21-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Nevev
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 8'
 TOTAL DEPTH: NA
 CASING: 0-5' 4" Dia. Sched 40 PVC Blank
 SCREEN: 5'-15' 4" Dia. Sched 40 PVC
 0.01 Slot Hi-Flow
 SURFACE COMPLETION: NA

WELL LOCATION



USCS - LITHOLOGIC DESCRIPTION

Surface Conditions:

0.0'-4.0' (SM/SC) (5YR 4/6) 100% Fine to medium silty/clayey sand, soft, slightly moist, odor, no plasticity.

4.0'-6.0' No recovery.

6.0'-8.0' (ML) (5YR 4/6) 25% Clayey fine silt, firm, low plasticity, slightly moist, odor.

8.0'-10.0' (5YR 4/6) 100% 0.0'-0.25' **(SM)** Fine to medium silty sand, sharp contact, wet, soft, odor. 0.25'-1.25' **(CL)** Fine silty/clay, moist, soft, good to medium plasticity, no odor. 1.25'-2.0' **(ML)** Very fine silty clay, firm, low to no plasticity, moist, no odor, trace of coarse sand/carbonate.

10.0'-12.0' (5YR 4/6, 5Y 4/1) 100% 0.0'-0.2' **(SM) (5YR 4/6)** Very fine silty sand with fines, very wet, runny, no odor, good contact. 0.2'-0.4' **(ML) (5YR 4/6)** Clayey fine sand, moist, soft, low plasticity, no odor. 0.4'-0.8' **(SM)** Same as (0.0'-0.2'). 0.8'-1.7' **(CL)** Silty clay, firm, slightly moist, trace of coarse sand carbonate, mottled as other holes. 1.7'-2.0' **(CH) (5YR 4/1)** Clay, moist, soft, good plasticity, trace coarse carbonate/sand.

12.0'-14.0' (5Y 4/1) 100% 0.0'-01.0' **(CL)** Wet, soft, clayey silt, no plasticity, smears well, no odor. 1.0'-2.0' **(CH)** Same as (1.7'-2.0') above.

14.0'-16.0' (CH) (5Y 4/1) 100% Same as (1.7'-2.0') above.

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete		H.A. 100%			116	1		
Bentonite Pellets (activated)		H.A. 100%				2		
10-20 Sand		18/10/9 0%			80.7	3		
8-12 Sand		7/5/4 25%				4		
		3/3/2 100%		VM-5 8.0'-8.5' (SM)	1,932	5		No Recovery
		4/3/3 100%		8.5	24	6		
		3/3/2 100%				7		
		3/3/2 100%			4.7	8		
		3/3/2 100%			3.1	9		
		3/3/2 100%			2.9	10		
						11		
						12		
						13		
						14		
						15		
						16		TD = 16'
						17		
						18		
						19		
						20		



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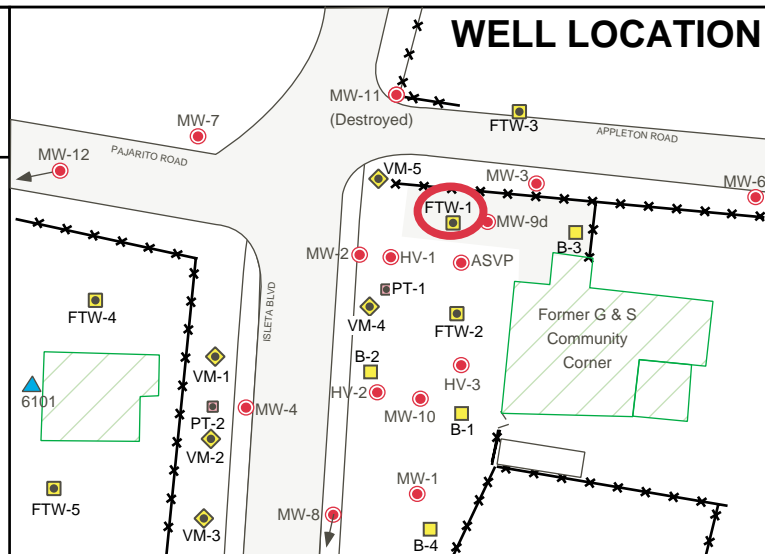
ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **FTW-1**

DATE OF DRILLING: 02-02-01
 LOGGED BY: W. Brown
 DRILLER: Rodgers
 BOREHOLE DIAMETER: 8"
 DRILLING METHOD: Hollow Stem Auger/Posthole
 SAMPLING METHOD: 3" Dia. Split Spoon/Posthole
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: ~8'
 TOTAL DEPTH: 17'
 CASING: 0-5' 2" Dia. Sched 40 PVC
 SCREEN: 5'-15' 2" Dia. 0.01 Slot Hi Flow PVC
 SURFACE COMPLETION: 8X12 Manway with Concrete Pad



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Bentonite Cement Grout						1		
Bentonite Pellets (hydrated)		2/4/6/7 100%			90.1	2		
		4/7/9/7 100%			3.1	5		
10-20 Sand		2/7/8/8 95%		FTW-1 6.5'-7' (SM) 14:00 580	3,278	7		
		3/4/2/3 100%		FTW-1 8.5'-9' (SM) 14:10 13	784	9		
		3/3/3/3 100%			654	11		
		1/3/3/4 100%			3.1	13		
Bentonite Pellets (hydrated)					4.2	15		
					6.1	17		
						18		TD = 17'
						19		
						20		

Surface Conditions: Asphalt

0.0'-0.2' Asphalt

0.2'-1.0' (SC) Clayey silty sand, slightly moist, weak hydrocarbon odor.

1.0'-3.0' (SM/ML) Brown (10YR) Silty-very fine sand mixture, moist, moderate hydrocarbon odor, non-plastic.

3.0'-5.0' Split Spoon 2.0' sample. 0.0'-2.0' (SM/ML) Silt-very fine sand mixture, moist, non-indurated, (10YR) brown, weak hydrocarbon odor.

5.0'-7.0' Split Spoon 2.0' sample. Fining downwards sequence. 0.0'-2.0' (SM/ML) As above changing to (SC/ML) brown silt/clay/very fine sand mixture then to (ML/CL) silt-clay mixture in lower 6", moist, moderate to strong hydrocarbon odor, plastic at base.

7.0'-9.0' Split Spoon 1.9' sample. 0.0'-0.4' (ML) As above, grades to 0.4'-1.0' (ML/CL) Clay-silt mixture, plastic, moist, moderate to strong hydrocarbon odor. 1.0'-2.0' (SM) Light to medium grained (N4) silty very fine to fine sand, unconsolidated, water saturated, weak to moderate hydrocarbon odor in sand.

9.0'-11.0' Split Spoon 2.0' sample. 0.0'-0.4' (SM) As above with (SM/SC) at base, weak hydrocarbon odor. 0.4'-2.0' (CL) Silty clay plastic grading to (CH) fat clay, very plastic, water saturated at base (10YR) to (7.5YR) reddish-yellow at base, no apparent hydrocarbon odor.

11.0'-13.0' Split Spoon 2.0' sample. 0.0'-0.3' (SC/CL) Clayey-sand-clay mixture grades to 0.3'-1.7' (CH) Fat clay, plastic, moist, dense, no apparent hydrocarbon odor, olive-brown color. 1.7'-2.0' (SC/ML) Clay-silt, very fine sand mixture, soft, slightly plastic, water saturated.

13.0'-15.0' Split Spoon 2.0' sample. 0.0'-0.3' (CH) As above. 0.3'-0.5' (SC/ML) As above, silt-clay-very fine sand mixture, non-plastic, soft, water saturated. 0.5'-2.0' (CH) Fat clay, dense to locally soft, plastic, trace hydrocarbon or hydrocarbon odor.

15.0'-17.0' Split Spoon 2.0' sample. 0.0'-0.3' (CH) As above. 0.3'-0.6' (SC/ML) As above, no odor. 0.6'-1.7' (CH) Dense plastic reddish-brown fat clay, grades to 1.5'-1.8' (SM/SC). 1.8'-2.0' (CH).

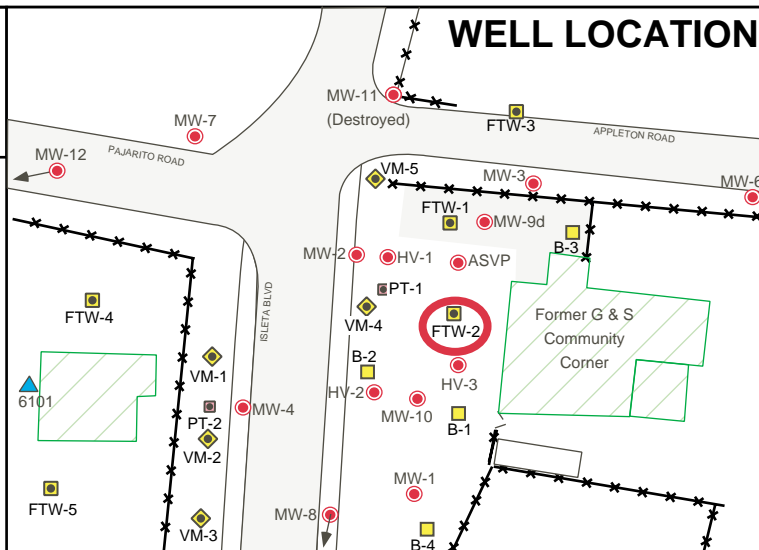


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ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: ISLETA-G&S
CLIENT: BCEHD
Well/Borehole ID: FTW-2

DATE OF DRILLING: 02-02-01
 LOGGED BY: W. Brown
 DRILLER: Harvey/Rodgers
 BOREHOLE DIAMETER: 8"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: 3" Dia. Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: ~8'-9'
 TOTAL DEPTH: 16'
 CASING: 0-5' 2" Dia. Sched 40 PVC
 SCREEN: 5'-15' 0.01 Slot 2" Dia. PVC Sched 40
 SURFACE COMPLETION: 8X12 Manway with Concrete Pad



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Bentonite Cement Grout						1		
					6.1	2		
		2/2/3/2 90%				3		
					7.0	4		
		2/3/5/6 100%			5.3	5		
				FTW-2 7' (SC/ML) 16:00	108	6		
		4/4/6/5 100%			1,578	7		
				<5		8		
		5/6/5/8 100%		FTW-2 9.5' (SM) 16:20	78	9		
				<5		10		
		1/2/1/2 100%			10.1	11		
					9.8	12		
		2/1/2/1 100%				13		
						14		
		1/2/2/4 100%			11.1	15		
						16		
						17		TD = 16'
						18		
						19		
						20		

Surface Conditions: Asphalt

0.0'-0.2' Asphalt

0.2'-2.0' Split Spoon 1.6' sample 0.0'-0.5' (GW) Sandy gravel (fill) no odor. 0.5'-1.6' (SC) Clayey very fine sand, plastic, no odor, moist.

2.0'-4.0' Split Spoon 2.0' sample. 0.0'-1.0' (SC) As above brown (10YR) clayey sand grading to 1.0'-2.0' (SM) Silty very fine to fine sand, brown (10YR) unconsolidated, moist, no odor.

4.0'-6.0' Split Spoon 2.0' sample. 0.0'-0.4' (SM) As above grades to 0.4'-1.7' (SM/ML) Silt-very fine sand mixture with trace clay, non-plastic, moist, no apparent hydrocarbon odor, brown (10YR) grades to 1.7'-2.0' (CL) (10YR) brown plastic sandy clay.

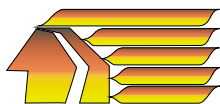
6.0'-8.0' Split Spoon 2.0' sample. 0.0'-0.3' (SM/ML) Silt sand mixture. 0.3'-1.5' (ML/SC) Silt with clay and some sand, soft, moist, brown-orange, very strong hydrocarbon gas odor grades to 1.5'-1.8' (CL) Clay, plastic. 1.8'-2.0' (SC/SM) Clayey silty very fine sand, water-moist.

8.0'-10.0' Split Spoon 2.0' sample. 0.0'-1.3' (SM) Silty very fine to fine sand, brown (10YR) in top 3", medium gray (N4) below, strong hydrocarbon gas odor decreases with depth, unconsolidated grades to 1.3'-2.0' (CH) Fat clay, dense, plastic, moderate hydrocarbon odor decreases with depth.

10.0'-12.0' Split Spoon 2.0' sample. 0.0'-2.0' (CH) Fat clay, high plasticity, dense (7.5YR) reddish brown, trace hydrocarbon odor at top.

12.0'-14.0' Split Spoon 2.0' sample. 0.0'-2.0' (CH) Dense to medium soft, high plasticity, reddish-brown (7.5YR) to olive brown, no apparent hydrocarbon odor.

14.0'-16.0' Split Spoon 2.0' sample. (CH) Fat clay, dense, stiff, high plasticity, no apparent hydrocarbon odor, mottled reddish-brown color.

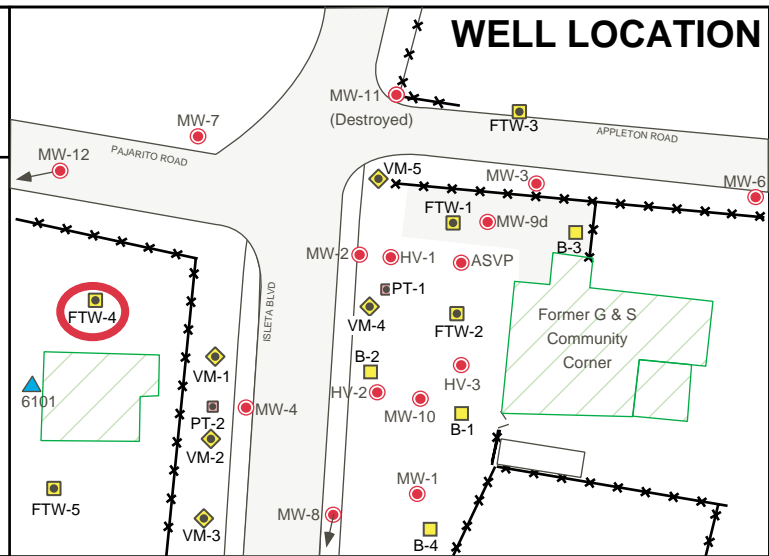


TECUMSEH PROFESSIONAL ASSOCIATES, INC.

ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: ISLETA-G&S
CLIENT: BCEHD
Well/Borehole ID: FTW-4

DATE OF DRILLING: 02-07-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/NeveX
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 7'
 TOTAL DEPTH: 16'
 CASING: 0-5' 2" Dia. Sched 40 PVC Blank
 SCREEN: 5'-15' 0.01 Slot 2" Dia. Sched 40 PVC
 SURFACE COMPLETION:



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Bentonite Cement Grout		HA 100%			2.8	1		
		HA 100%			3.3	2		
Bentonite Pellets (hydrated)		6/5/4 95%			0.3	3		
		5/4/2 90%		FTW-4 7.0'-7.5'	0.7	4		
		3/3/3 100%		<5		5		
10-20 Sand		3/3/2 100%			0.3	6		
		4/3/3 100%			2.5	7		
		4/3/3 100%			1.6	8		
					1.9	9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions:

0.0'-2.0' (SM) (5YR 4/6) 100% Silty sand-fine to coarse with some fine to coarse gravel, very hard, slightly moist, no odor.
2.0'-4.0' (SM) (5YR 4/6) 100% Same as (0.0'-2.0') above.
4.0'-6.0' 95% 0.0'-0.8' (ML) (5YR 4/6) Clayey silt, firm, low to medium plasticity, slightly moist, no odor. 0.8'-1.4' (SP) (10YR 6/8) Well sorted fine sand with fines, soft, slightly moist, no odor. 1.4'-1.9' (ML) Same as (4.0'-6.0'(0.0'-0.8')), sharp contacts.
6.0'-8.0' (10YR 6/8, 5YR 4/6) 90% 0.0'-0.4' (SP) Well sorted fine sand with fines, slightly moist, no odor. 0.4'-1.8' (SM) Silty sand, fine sand with trace of medium, soft, no odor, becomes wet at ~1.0'.
8.0'-10.0' (10R 3/6) 100% 0.0'-0.1' (SM) Continued from above. 0.1'-2.0' (CL) Silty clay, firm, moist, medium plasticity, no odor, trace coarse sand.
10.0'-12.0' (CL) (5YR 4/6) 100% 0.0'-1.5' (CL) Silty clay, very wet, soft, medium plasticity, no odor. 1.5'-2.0' (CL) Silty clay, moist, firm, medium plasticity, trace of coarse sand, no odor.
12.0'-14.0' (CL) (5YR 4/6, 5G 6/1) 100% 0.0'-1.8' Silty clay, firm, moist, medium plasticity, no odor, trace coarse sand. 1.8'-2.0' Same silty clay but color changes to (5G 6/1), no odor, some organic decay (roots?), all firm.
14.0'-16.0' (5YR 4/6) 100% 0.0'-0.4' (CL) Silty clay, firm, medium plasticity, wet, no odor, trace coarse sand. 0.4'-1.2' (CH) Fat clay, soft, high plasticity, sticky, no odor, wet. 1.2'-2.0' (CL) Silty clay, firm, medium plasticity, no odor, trace of what looks like carbonate shell fragments.

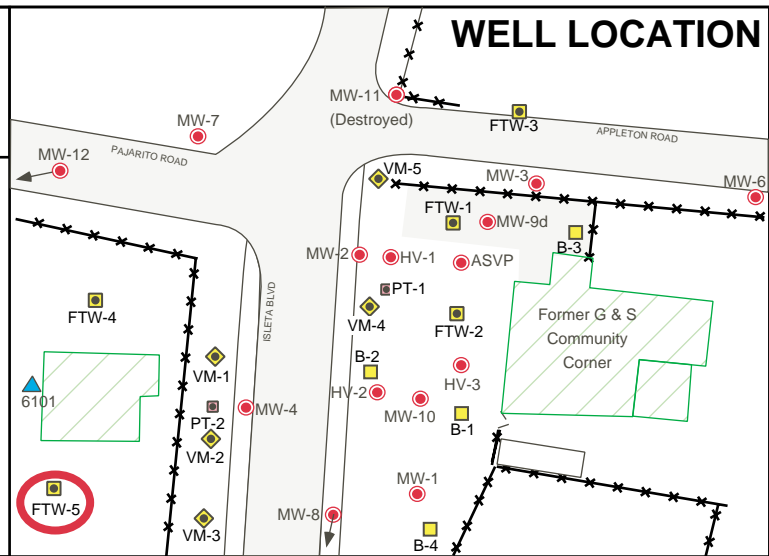


TECUMSEH PROFESSIONAL ASSOCIATES, INC.

ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: ISLETA-G&S
CLIENT: BCEHD
Well/Borehole ID: FTW-5

DATE OF DRILLING: 02-07-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/NeveX
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 2.6'
 TOTAL DEPTH: 16'
 CASING: 0-5' 2" Dia. Sched 40 PVC
 SCREEN: 5'-15' 0.01 Slot 2" Dia. Sched 40 PVC
 SURFACE COMPLETION: NA



USCS - LITHOLOGIC DESCRIPTION

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Bentonite Cement Grout		H.A. 100%			28	1		
Bentonite Pellets (hydrated)		H.A. 100%			10	2		
		6/5/5 90%			3.2	3		
		8/6/4 80%		FTW-5 7.0'-7.5'	1.7	4		
10-20 Sand		4/3/3 90%		<5	34	5		
		4/3/3 90%			23	6		
		1/1 60%			18	7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Surface Conditions:

0.0'-2.0' (5YR 4/6) 100% 0.0'-1.5' (CL) Silty clay with medium plasticity, slightly moist, no odor, sharp contact at (SM). 1.5'-2.0' (SM) (10YR 6/8) Fine to medium grained silty sand, soft, slightly moist, no odor.

2.0'-4.0' (SP) (10YR 6/8) 100% Well sorted fine sand with little fines, slightly moist, no odor, soft.

4.0'-6.0' 90% 0.0'-0.2' (SP) Same as (2.0'-4.0') above, sharp contact at (ML). 0.2'-1.2' (ML) (5YR 4/6) Very fine sand/silt, clayey, slight plasticity, soft/firm, slightly moist, no odor. 1.2'-1.8' (SM) (5YR 4/6) Fine to medium silty sand, moist/wet, no odor, looks like a perched water at ~5'10" or leach from septic system, no odor.

6.0'-8.0' (10YR 5/3) 80% 0.0'-1.2' (SP) Fine sand, well sorted, wet, no odor, sharp contact at (CL). 1.2'-1.6' (CL) Silty clay with medium plasticity, firm, moist, no odor.

8.0'-10.0' (5YR 4/6) 90% 0.0'-0.4' (SC) Clayey fine sand, almost plastic, moist, firm, no odor, grades to (CL) in 1". 0.4'-1.8' (CL) Silty clay with medium plasticity, moist, firm, no odor.

10.0'-12.0' (5YR 4/6) 100% 0.0'-1.2' (CH) Clay, trace of coarse (<.01%) medium sand grains, moist, firm but very plastic, no odor. 1.2'-1.3' Well sorted fine sand with fines, ~ 2" layer then returns to (CH) as above, sand layer wet, no odor.

12.0'-14.0' (CL) (5YR 4/6) 60% Clay, soft, sticky, moist-wet, no odor (<.01%) coarse sand.



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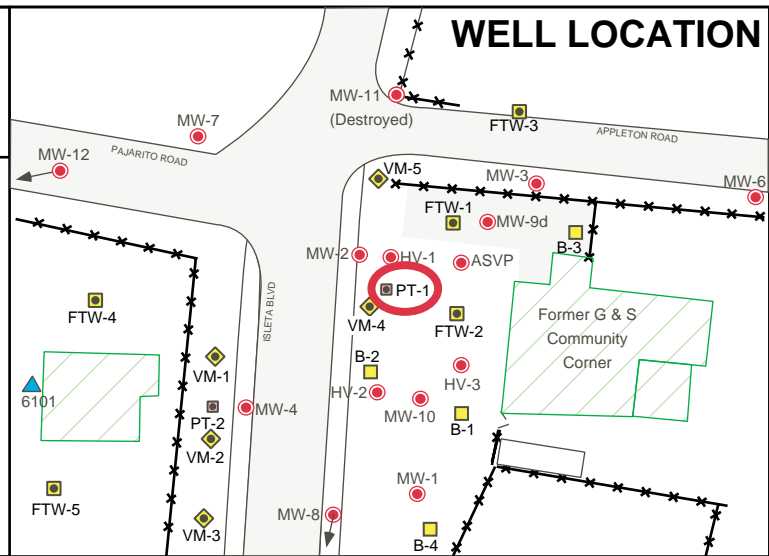
ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: **ISLETA-G&S**

CLIENT: **BCEHD**

Well/Borehole ID: **PT-1**

DATE OF DRILLING: 02-14-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Neve
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 8'
 TOTAL DEPTH: 9'
 CASING: 1" Sched 80 PVC Blank
 SCREEN: 1" Sched 80 PVC .01 Slot
 2' Upper, 3' Deep
 SURFACE COMPLETION: 12" Manway with Concrete Pad



USCS - LITHOLOGIC DESCRIPTION

Surface Conditions: Asphalt

0.0'-2.0' (SM/SC) (5YR 4/6) 100% Fine to medium silty/clayey sand, no plasticity, smears so-so, slightly moist, no odor.
2.0'-4.0' (SM/SC) (5YR 4/6) 100% Same as (0.0'-2.0') above.
4.0'-6.0' (ML) (5YR 4/6) 75% Very fine sand/silt-clayey, no plasticity, smears well, slightly moist, no odor.
6.0'-8.0' (ML/SM) (5YR 4/6) 60% 0.0'-0.9' Very fine sand/silt-clayey, no plasticity, smears well, moist, odor. 0.9'-1.2' (SM) Fine grained silty sand (N5) strong odor, soft, wet.

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete						1		
Bentonite Pellets (hydrated)		H.A. 100%			1.0	2		
10-20 Sand						3		
8-12 Sand		H.A. 100%			2.1	4		
Bentonite Pellets (hydrated)						5		
10-20 Sand		6/5/5 75%			265	6		
8-12 Sand		7/6/6 60%				7		
				PT-1 7.5'-8.0' 740	3,366	8		
						9		
						10		
						11		
						12		
						13		
						14		
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						20		

TD = 9'



TECUMSEH PROFESSIONAL ASSOCIATES, INC.

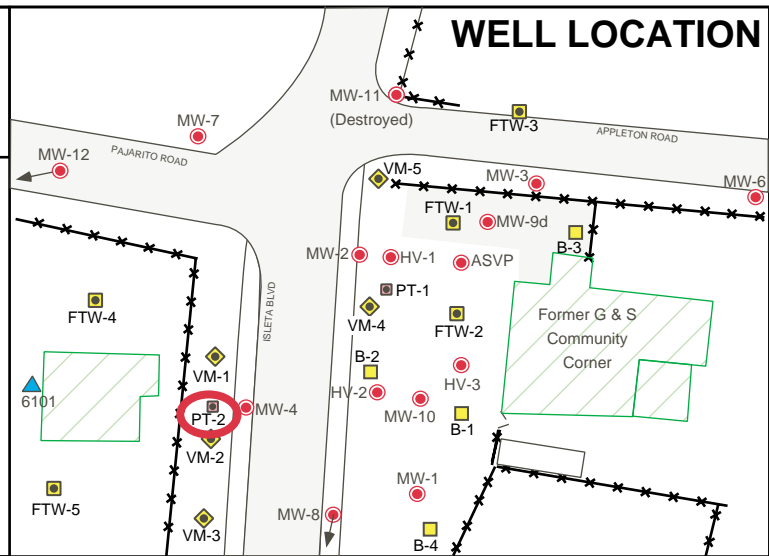
ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

SITE ID: ISLETA-G&S

CLIENT: BCEHD

Well/Borehole ID: PT-2

DATE OF DRILLING: 02-14-01
 LOGGED BY: S. Grietens
 DRILLER: Stan/Neve
 BOREHOLE DIAMETER: 7"
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Continuous Split Spoon
 TOP OF CASING ELEV: Not Available
 DEPTH TO WATER: 7'
 TOTAL DEPTH: 9'
 CASING: 1" Dia. Sched 80 PVC
 SCREEN: 1" Dia. Sched 80PVC .01 2' Upper, 3' Deep
 SURFACE COMPLETION: NA



USCS - LITHOLOGIC DESCRIPTION

Surface Conditions:

0.0'-2.0' (SM/SC) (5YR 4/6) 100% Fine to medium silty/slightly clayey sand, soft, slightly moist, no odor.

2.0'-4.0' (SM) (10YR 6/8) 100% Fine to medium silty sand, soft, slightly moist, no odor.

4.0'-6.0' (SM) (10YR 6/8) 80% Fine silty sand, soft, slightly moist, no odor.

6.0'-8.0' (SM) (10YR 6/8) 60% Fine silty sand, soft, wet at 7', odor, color change at 7.5' to (NS).

Construction Data	Well/Borehole Construction	Blowcounts/ % recovery	Color	TPH Laboratory Sample (ppm)	PID Reading (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete Bentonite Pellets (hydrated) 10-20 Sand 8-12 Sand		H.A. 100%			1.9	1		
		H.A. 100%			1.3	2		
Bentonite Pellets (hydrated) 10-20 Sand 8-12 Sand		7/7/5 80%			5.7	3		
		5/5/3 60%			1,390	4		
				PT-2 7.5'-8.0'	<5	5		
						6		
						7		
						8		
						9		
						10		TD = 9'
						11		
						12		
						13		
						14		
						15		
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						17		
						18		
						19		
						20		



TECUMSEH PROFESSIONAL ASSOCIATES, INC.

ONE SYCAMORE PLAZA, 5600 WYOMING BLVD, NE, ALBUQUERQUE, NEW MEXICO 87113
 PHONE: (505) 293-1156 FAX: (505) 293-1971

**SITE HEALTH & SAFETY PLAN FOR THE G & S SITE
6100 ISLETA BLVD. SW, ALBUQUERQUE, NM
QUARTERLY GROUND WATER MONITORING AND SAMPLING**

SITE DESCRIPTION

Site Location: The site location is in the south valley of Albuquerque, New Mexico on Isleta Boulevard two and 3/4 miles north of the I-25 and Isleta Blvd exit.

Project Objective: Ground water level measurements, well purging and sampling of monitoring wells to a depth up to 20 feet.

Site Description: The site is a former gasoline station that is presently occupied by the Kar Kare mechanic. No USTs presently exist at the site. No fuel dispensing is conducted.

PROJECT PERSONNEL

Project Team Leader:	William Brown
Scientific Advisor:	Stuart Faith
Site Safety Officer:	Kent Fry
Public Information Officer:	Dave Strasser
Security Officer:	Kent Fry
Record Keeper:	Matt Broilo
Field Team Members:	Kent Fry, Stuart Faith, Matt Broilo, William Brown, Tim Chavez, Chris Faith
State Agency Representative:	Tom Leck, NMED/USTD

All activities on-site must be cleared through the Project Team Leader or Site Safety Officer.

ON-SITE CONTROL

William Brown is designated to coordinate access control and security on-site. The work zone perimeter will be established within a perimeter around each monitor well. No unauthorized person should be within the designated area.

HAZARD EVALUATION

The primary chemical hazard associated with the well installation is gasoline vapors. Gasoline is a mixture of several products. The primary constituents of concern and their associated hazards are identified below. Many of the hazards identified below are significantly small in quantity but should still be recognized as potential safety issues.

Substances Involved	Primary Hazards
Benzene	Extremely Flammable, Gives off Poisonous Vapor, Danger of Cumulative Health Effects
Toluene	Highly Flammable, Harmful Vapor
Xylenes	Harmful Vapor, Harmful by Skin Absorption, Flammable
1,2 Dichloroethane (EDB)	Highly Flammable, Harmful Vapor, Irritating to Skin, Eyes and Respiratory System
1,2 Dibromoethane (EDC)	Harmful Vapor, Toxic in Skin Contact
Ethylbenzene	Highly Flammable, Harmful Vapor, Irritating to Skin, Eyes and Respiratory System
Methyl Tert Butyl Ether (MTBE)	Extremely Flammable, Harmful Vapor, Irritating to Skin, Eyes and Respiratory System
Naphthalene	Moderately Flammable, Skin and Eye Irritant, Gastrointestinal Irritation

Hazardous Substance Information forms for these compounds are kept on file at the FEI office. They are available for review upon request.

Because of the chemical hazards associated with the gasoline vapors, no smoking or consumption of food and beverages will be permitted. The buddy system will be mandatory for personnel in the Work Zone at all times. If organic vapor levels exceed 300 ppm, respiratory protection will be required. Workers are cautioned to minimize skin contact routes of exposure.

Explosive vapors levels will be monitored as needed to insure worker safety. No open flames or ignition sources will be operated when explosivity levels exceed 1.5% in the Work Zone. No activities will take place in the Work Zone when explosive vapor levels exceed 15%.

The project scientist or safety officer will monitor all workers on the site for signs of heat stress and will ensure that adequate drinking water is available on-site. Workers that show signs of heat stress will immediately stop work, be placed in an air-conditioned vehicle and begin taking fluids. The worker's condition will be evaluated and evacuated for medical care as needed.

PERSONAL PROTECTIVE EQUIPMENT

Based on evaluation of the potential hazards, a Level D personal protection will be designated for the work zone.

Recommended equipment includes:

Coveralls / Long Sleeves and long pants (minimal skin exposure)
Safety boots/shoes

Optional equipment includes:

Hearing protection
Respiratory protection (half/full face respirators with solvent cartridges)

ENVIRONMENTAL MONITORING

The following environmental monitoring instruments shall be used on-site:

Combustible Gas Indicator to monitor flammable/explosive gas levels.

FID to monitor volatile organic vapor levels.

If monitoring indicates TLV levels exceed weighted averages, respiratory protection will be required in the affected areas.

EMERGENCY MEDICAL CARE

A person certified in first aid and CPR will be on-site during all work activities.

First aid equipment will be available on-site. A first aid kit will be in the FEI field vehicle.

Emergency telephone numbers:

Ambulance 911

Fire Dept. 911

Sheriff 911

Presbyterian Hospital Urgent Care Unit

462-7777

Hospital: Presbyterian Urgent Care Unit, 3436 Isleta Blvd.; Directions – north on Isleta Blvd. approximately 3 miles to Rio Bravo. Located on the northeast corner of Isleta and Rio Bravo. (See attached map) The Urgent Care Unit emergency entrance will be in front. Follow signs to emergency entrance. ALTERNATIVE: Call 911 for ambulance transport.

STANDARD TREATMENTS FOR CHEMICAL EXPOSURES ARE:

Splashes of the skin

1. Flood the splashed surface thoroughly with large quantities of running water for ten (10) minutes.
2. If the situation warrants it, arrange for transport to hospital. Provide information to hospital personnel about the chemical responsible and first aid treatment administered.

Splashes of the eye

1. Flood the eye thoroughly with large quantities of gently running water from tap or eye wash for ten (10) minutes.
2. Ensure the water bathes the eyeball by gently pressing open the eyelids and keeping them apart until treatment is completed.

3. Arrange transport to hospital and provide information to accompany casualty on the chemical responsible and first aid treatment administered.

Inhalation of gases

1. Ensure personal safety. Immediately remove the casualty out of danger area into fresh air.
2. If the casualty is unconscious, check breathing. If breathing has stopped, apply artificial respiration.
3. Arrange transport to hospital and provide information on compounds responsible and first aid treatment given.

Ingestion of poisonous chemicals

1. If the chemical has been confined to the mouth, give large quantities of water as a wash. Ensure mouth wash is not swallowed.
2. If the chemical has been swallowed, give copious drinks of water to dilute it in the stomach.
3. Do not induce vomiting.
4. Arrange for transport to the hospital. Provide information to accompany casualty on chemical swallowed and details of treatment given and possible estimate of the quantity and concentration of the chemical consumed.

EMERGENCY PROCEDURES (WILL BE MODIFIED AS REQUIRED FOR INCIDENT)

The following standard emergency procedures will be used by on-site personnel. The Site Safety Officer shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personal Injury in the Work Zone: Upon notification of an injury in the Work Zone, the designated emergency signal is a shout. All site personnel will move to the south of the property away from the work zone and along the fence. The Site Safety Officer will evaluate the nature of the injury and select individuals to assist in moving the injured person to a safe area if possible. The appropriate first aid will be initiated by the Site Safety Officer. A designated individual will contact the ambulance service and hospital (if required). No persons will reenter the Work Zone until the cause of the injury or symptoms has been determined.

Fire / Explosion: Upon notification of fire or explosion on-site, the designated emergency signal is a shout. All site personnel will rapidly evacuate the site at a safe distance from the involved area. The fire department will be alerted and all personnel will remain at a safe distance until the situation is resolved.

Personal Protective Equipment Failure: If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person will immediately leave the Work Zone. Reentry will not be permitted until the equipment has been repaired or replaced.

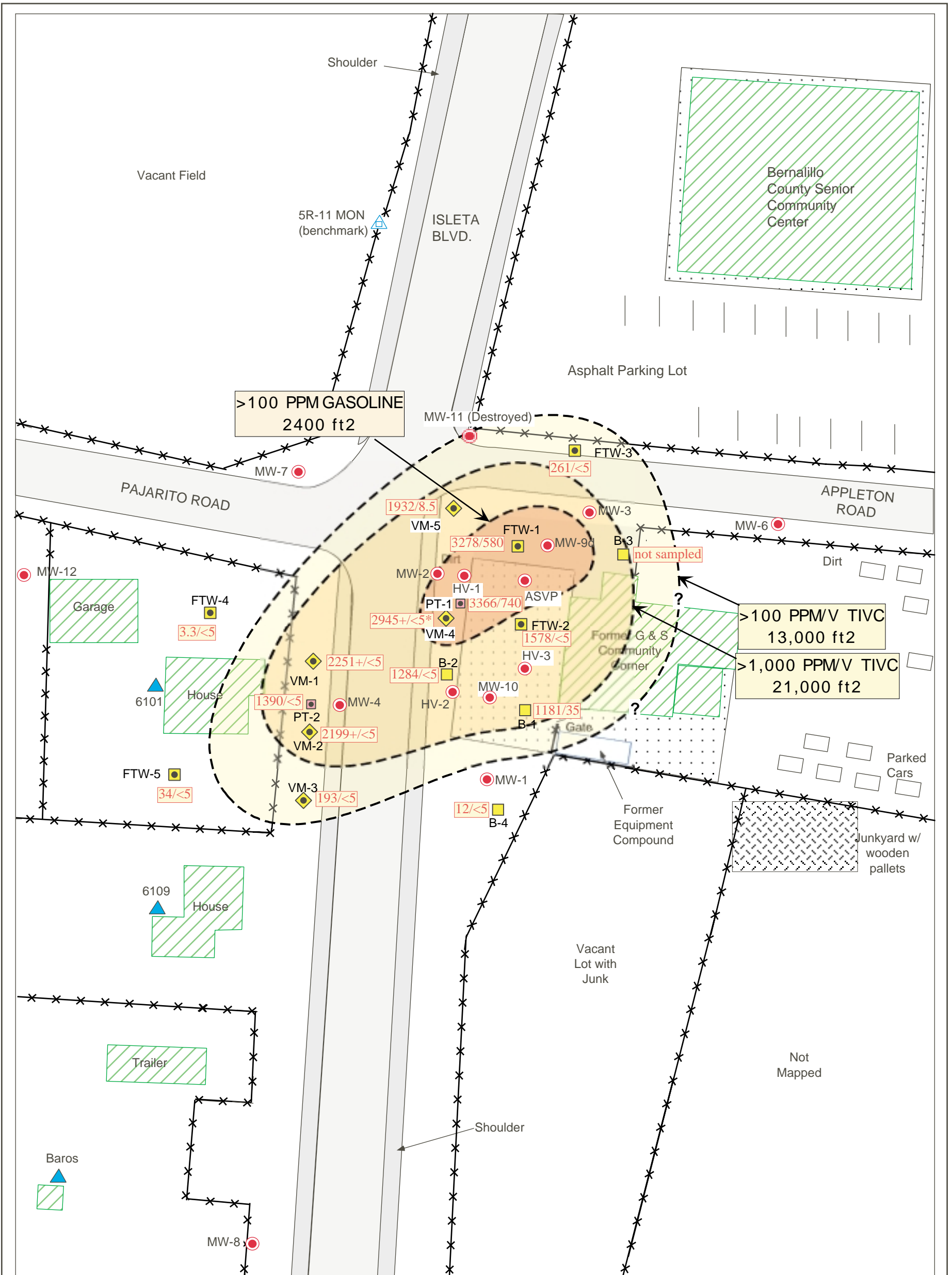
Other Equipment Failure: If any other equipment on-site fails to operate properly, the Project Team Leader and the Site Safety Officer will be notified and then determine the effect of this failure on continuing operations on-site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel will leave the Work Zone until the situation is evaluated and appropriate actions taken.

The following emergency escape route is designated: move to the south of the property away from the work zone to the open area along Isleta Boulevard. In all situations, when an on-site emergency results in evacuation of the Work Zone, personnel will not reenter until:

- 1. The conditions resulting in the emergency have been corrected.
- 2. The hazards have been reassessed.
- 3. The Site Safety Plan has been reviewed.
- 4. Site Personnel have been briefed on any changes in the Site Safety Plan.

All site personnel have read the above plan and are familiar with its provisions.

	Name	Signature
Site Safety Officer:		
Project Team Leader:		
Other Site Personnel:		



EXPLANATION:

- New 4" Diameter VE/Monitor Well
- New 2" Diameter Monitor Well
- New Soil Boring
- New Multiple Completion Pilot Test Well
- Existing Monitor Well Location
- Private Water Supply Well
- Building
- Concrete
- Fence Line
- Scale
- Maximum Soil Headspace Concentration (In parts per million/volume (ppm/v))
- Maximum Soil Total Petroleum Hydrocarbons (TPH) Concentration (In parts per million (ppm))
- Soil Headspace Isocontour (In ppm/v)
- TPH gasoline range Isocontour (in ppm)

RESIDUAL HYDROCARBON
SPILL MASS ESTIMATE
MAP

Former G & S Community Center
6100 Isleta SW, Albuquerque, New Mexico

FEI Faith Engineering, Inc.
1000 Lomas Boulevard NW
Albuquerque, New Mexico 87102-1945
(505) 243-5494 • FAX (505) 243-5585
e-mail • faithinc@flash.net

TECUMSEH
Professional Associates, Inc.
5600 Wyoming Blvd. NE, Suite 150
Albuquerque, New Mexico 87110
ph: (505) 293-1156 fax: (505) 293-1971

Map Drawn by: WJB	Client: BCEHD
Base Drawn by: KGF/WJB/ABL	Project: 99-00-1189
Date : April 2001	Figure A